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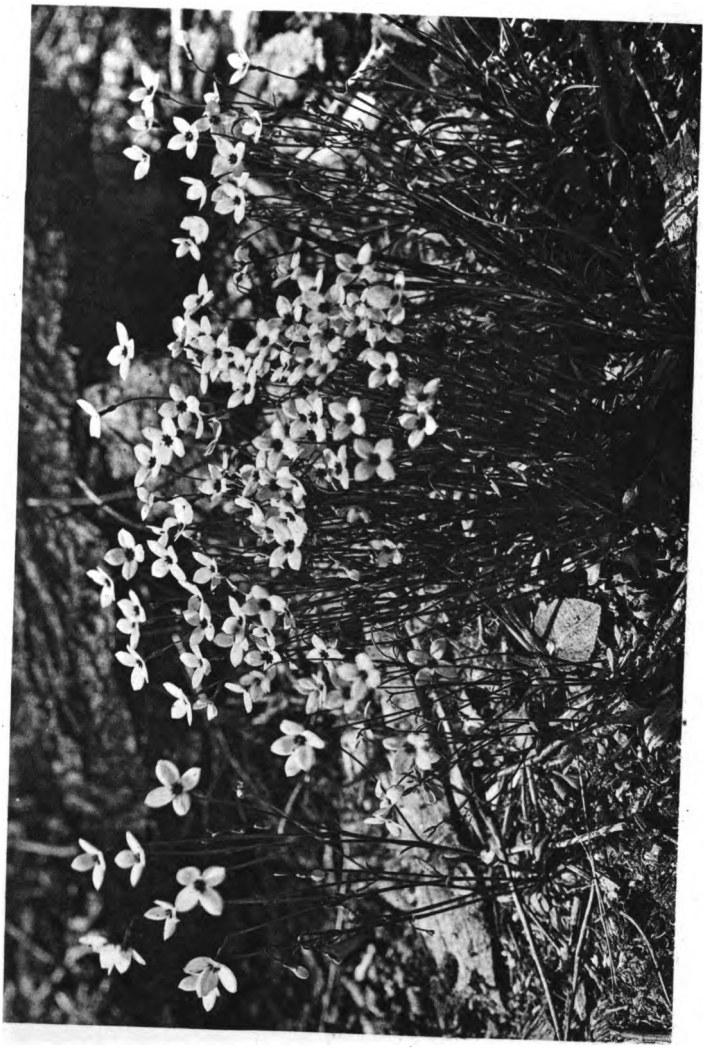

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THE WRITINGS OF
HENRY DAVID THOREAU

JOURNAL

EDITED BY BRADFORD TORREY

XIII

DECEMBER 1, 1859–JULY 31, 1860

BOSTON AND NEW YORK
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JOURNAL

VOLUME XIII

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THE JOURNAL OF HENRY DAVID THOREAU

VOLUME XIII

I

DECEMBER, 1859 (ÆT. 42)

Nov. 30, *Dec.* 1 *and* 2 were remarkably warm and springlike days, — a moist warmth. The crowing of cocks and other sounds remind you of spring, such is the state of the air. I wear only one coat.

Dec. 3. Suddenly quite cold, and freezes in the house.

Rode with a man this forenoon who said that if he did not clean his teeth when he got up, it made him sick all the rest of the day, but he had found by late experience that when he had not cleaned his teeth for several days they cleaned themselves. I assured him that such was the general rule, — that when from any cause we were prevented from doing what we had commonly thought indispensable for us to do, things *cleaned* or took care of themselves.

X [1] was betrayed by his eyes, which had a glaring

[1] [X, whom Thoreau drove this morning to Acton, was literally an unknown quantity to him at the time. He did not learn till afterward

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film over them and no serene depth into which you could look. Inquired particularly the way to Emerson's and the distance, and when I told him, said he knew it as well as if he saw it. Wished to turn and proceed to his house. Told me one or two things which he asked me not to tell S.[1] Said, "I know I am insane," — and I knew it too. Also called it "nervous excitement." At length, when I made a certain remark, he said, "I don't know but *you* are Emerson; are you? You look somewhat like him." He said as much two or three times, and added once, "But then Emerson would n't lie." Finally put his questions to me, of Fate, etc., etc., as if I *were* Emerson. Getting to the woods, I remarked upon them, and he mentioned my name, but never to the end suspected who his companion was. Then "proceeded to business," — "since the time was short," — and put to me the questions he was going to put to Emerson. His insanity exhibited itself chiefly by his incessant excited talk, scarcely allowing me to interrupt him, but once or twice apologizing for his behavior. What he said was for the most part connected and sensible enough.

When I hear of John Brown and his wife weeping at length, it is as if the rocks sweated.

Dec. 4. Awake to winter, and snow two or three inches deep, the first of any consequence.

that it was Francis Jackson Merriam, one of John Brown's men, on his way to Canada. See the account in *Familiar Letters*, pp. 365–367; Riv. 422–425.]

[1] [Mr. F. B. Sanborn.]

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Dec. 5. P. M. — Down Turnpike to Smith's Hill.

Rather hard walking in the snow. There is a slight mist in the air and accordingly some glaze on the twigs and leaves, and thus suddenly we have passed from Indian summer to winter. The perfect silence, as if the whispering and creaking earth were muffled (her axle), and the stillness (motionlessness) of the twigs and of the very weeds and withered grasses, as if they were sculptured out of marble, are striking. It is as if you had stepped from a withered garden into the yard of a sculptor or worker in marble, crowded with delicate works, rich and rare. I remark, half a mile off, a tall and slender pitch pine against the dull-gray mist, peculiarly monumental. I noticed also several small white oak trees full of leaves by the roadside, strangely interesting and beautiful. Their stiffened leaves were very long and deeply cut, and the lighter and glazed under sides being almost uniformly turned vertically toward the northwest, as a traveller turns his back to the storm, though enough of the redder and warmer sides were seen to contrast with them, it looked like an artificial tree hung with many-fingered gauntlets. Such was the disposition of the leaves, often nearly in the same plane, that it looked like a brown arbor-vitæ.

See four quails running across the Turnpike. How they must be affected by this change from warm weather and bare ground to cold and universal snow!

Returning from the post-office at early candle-light, I noticed for the first time this season the peculiar effect of lights in offices and shops seen over the snowy

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streets, suggesting how withdrawn and inward the life in the former, how exposed and outward in the latter.

His late career — these six weeks, I mean — has been meteor-like, flashing through the darkness in which we live. I know of nothing more miraculous in all history.[1]

Nothing could his enemies do but it redounded to his infinite advantage, the advantage of his cause. They did not hang him at once; they reserved him to preach to them. And here is another great blunder: they have not hung his four followers with him; that scene is still to come, and so his victory is prolonged.

No theatrical manager could have arranged things so wisely to give effect to his behavior and words. And who, think you, *was* the Manager? Who placed the slave-woman and her child between his prison and the gallows?[2]

The preachers, the Bible men, they who talk about principle and doing to others as you would that they should do unto you, —how could they fail to recognize him, by far the greatest preacher of them all, with the Bible on his lips, and in his acts, the embodiment of principle, who actually carried out the golden rule? All whose moral sense is aroused, who have a calling from on high to preach, have sided with him. It may prove the occasion, if it has not proved it already, of a new sect of *Brownites* being formed in our midst.[3]

I see now, as he saw, that he was not to be pardoned or rescued by men. That would have been to disarm

[1] [*Cape Cod, and Miscellanies*, p. 441; *Misc.*, Riv. 237.]
[2] [*Cape Cod, and Miscellanies*, p. 448; *Misc.*, Riv. 246.]
[3] [*Cape Cod, and Miscellanies*, pp. 442, 443; *Misc.*, Riv., 239.]

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him, to restore to him a material weapon, a Sharp's rifle, when he had taken up the sword of the spirit, — the sword with which he has really won his greatest and most memorable victories. Now he has not laid aside the sword of the spirit. He is pure spirit himself, and his sword is pure spirit also.

On the day of his translation, I heard, to be sure, that he was hung, but I did not know what that meant, — and I felt no sorrow on his account; but not for a day or two did I even *hear* that he was dead, and not after any number of days shall I believe it. Of all the men who are said to be my contemporaries, it seems to me that John Brown is the only one who *has not* died. I meet him at every turn. He is more alive than ever he was. He is not confined to North Elba nor to Kansas. He is no longer working in secret only. John Brown has earned immortality.[1]

Men have been hung in the South before for attempting to rescue slaves, and the North was not much stirred by it. Whence, then, this wonderful difference? We were not so sure of their devotion to principle. We have made a subtle distinction, have forgotten human laws, and do homage to an idea. The North is suddenly all Transcendental. It goes behind the human law, it goes behind the apparent failure, and recognizes eternal justice and glory.

It is more generous than the spirit which actuated our forefathers, for it is a revolution in behalf of another, and an oppressed, people.[2]

[1] [*Cape Cod, and Miscellanies*, pp. 448–450; *Misc.*, Riv. 246–248.]

[2] [*Cape Cod, and Miscellanies*, p. 443; *Misc.*, Riv. 239, 240.]

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Dec. 6. P. M. — To Walden and Baker Bridge, in the shallow snow and mizzling rain.

It is somewhat of a lichen day. The bright-yellow sulphur lichens on the walls of the Walden road look novel, as if I had not seen them for a long time. Do they not require cold as much as moisture to enliven them? What surprising forms and colors! Designed on every natural surface of rock or tree. Even stones of smaller size which make the walls are so finished, and piled up for what use? How naturally they adorn our works of art! See where the farmer has set up his post-and-rail fences along the road. The sulphur lichen has, as it were, at once leaped to occupy the northern side of each post, as in towns handbills are pasted on all bare surfaces, and the rails are more or less gilded with them as if it had rained gilt. The handbill which nature affixes to the north side of posts and trees and other surfaces. And there are the various shades of green and gray beside.

Though it is melting, there is more ice left on the twigs in the woods than I had supposed.

The mist is so thick that we cannot quite see the length of Walden as we descend to its eastern shore. The reflections of the hillsides are so much the more unsubstantial, for we see even the reflected mist veiling them. You see, beneath these whitened wooded hills and shore sloping to it, the dark, half mist-veiled water. For two rods in width next the shore, where the water is shallowest and the sand bare, you see a strip of light greenish two or three rods in width, and then dark brown (with a few green streaks only) where

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the dark sediment of ages has accumulated. And, looking down the pond, you see on each side successive wooded promontories — with their dim reflections — growing dimmer and dimmer till they are lost in the mist. The more distant shores are a mere dusky line or film, a sort of concentration of the mistiness.

In the pure greenish stripe next the shore I saw some dark-brown objects above the sand, which looked very much like sea turtles in various attitudes. One appeared holding its great head up toward the surface. They were very weird-like and of indefinite size. I supposed that they were stumps or logs on the bottom, but was surprised to find that they were a thin and *flat* collection of sediment on the sandy bottom, like that which covered the bottom generally further out.

When the breeze rippled the surface some distance out, it looked like a wave coming in, but it never got in to the shore.

No sooner has the snow fallen than, in the woods, it is seen to be dotted almost everywhere with the fine seeds and scales of birches and alders, — no doubt an ever-accessible food to numerous birds and perhaps mice. Thus it is alternate snow and seeds.

Returning up the railroad, I see the great tufts of sedge in Heywood's meadow curving over like locks of the meadow's hair, above the snow.

These browned the meadow considerably. Then came a black maze, of alders moistened by the rain, which

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made a broad black belt between the former brown and the red-brown oaks higher up the hillside.

The white pines now, seen through the mist, the ends of their boughs drooping a little with the weight of the glaze, resemble very much hemlocks, for the extremities of their limbs always droop thus, while pines are commonly stiffly erect or ascendant.

Came upon a round bed of tansy, half a dozen feet in diameter, which was withered quite black, as seen above the snow, — blacker than any plant I remember. This reminded me that its name was by some thought to be from ἀθανασία, or immortality, from its not withering early, but in this case it suggested its funereal reputation.

What a transit that of his horizontal body alone, but just cut down from the gallows-tree! We read that at such a time it passed through Philadelphia, and by Saturday night had reached New York. Thus like a meteor it passed through the Union from the Southern regions toward the North. No such freight have the cars borne since they carried him southward alive.[1]

What avail all your scholarly accomplishments and learning, compared with wisdom and manhood? To omit his other behavior, see what a work this comparatively unread and unlettered man has written within six weeks! Where is our professor of *belles-lettres*, or of logic and rhetoric, who can write so well? He has written in prison, not a History of the World like Raleigh, for his time was short, but an American book which shall live longer than that.

[1] [*Cape Cod, and Miscellanies*, p. 449; *Misc.*, Riv. 247.]

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The death of Irving, which at any other time would have attracted universal attention, having occurred while these things were transpiring, goes almost unobserved. Literary gentlemen, editors, and critics think that they know how to write because they have studied grammar and rhetoric; but the art of composition is as simple as the discharge of a bullet from a rifle, and its masterpieces imply an infinitely greater force behind it. This unlettered man's speaking and writing is standard English. Some words and phrases deemed vulgarisms and Americanisms before, he has made standard American. "*It will pay.*" It suggests that the one great rule of composition — and if I were a professor of rhetoric I should insist on this — is to *speak the truth.* This first, this second, this third. This demands earnestness and manhood chiefly.[1]

I felt that he, a prisoner in the midst of his enemies and under sentence of death, if consulted as to his next step, could answer more wisely than all his countrymen beside. He best understood his position; he contemplated it most calmly. All other men, North and South, were beside themselves. Our thoughts could not revert to any greater or wiser or better men with whom to compare him, for he was above them all. The man this country was about to hang was the greatest and best in it.[2]

Commonly men live according to a formula, and are satisfied if the order of law is observed, but in this instance they returned to original perceptions and there was a revival of old religion; and they saw that what

[1] [*Cape Cod, and Miscellanies*, pp. 446–448; *Misc.*, Riv. 244, 245.]
[2] [*Cape Cod, and Miscellanies*, pp. 441, 442; *Misc.*, Riv. 237, 238.]

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was called order was confusion, what was called justice, injustice, that the best was deemed the worst.

Most Northern men, and not a few Southern ones, have been wonderfully stirred by Brown's behavior and words. They have seen or felt that they were great, heroic, noble, and that there has been nothing quite equal to them in this country, if in the recent history of the world. But the minority have been unmoved by them. They have only been surprised and provoked by the attitude of their neighbors. They have seen that Brown was brave and believed that he had done right, but they have not detected any further peculiarity in him. Not being accustomed to make fine distinctions or to appreciate noble sentiments, they have read his speeches and letters as if they read them not, — they have not known when they *burned*. They have not felt that he spoke with authority, and hence they have only remembered that the *law* must be executed. They remember the old formula; they do not hear the new revelation. The man who does not recognize in Brown's words a wisdom and nobleness, and therefore an authority, superior to our laws, is a modern Democrat. This is the test by which to try him. He is not willfully but constitutionally blind, and he is consistent with himself. Such has been his past life. In like manner he has read history and his Bible, and he accepts, or seems to accept, the last only as an established formula, and not because he has been convicted by it. You will not find kindred sentiments in his commonplace-book.[1]

[1] [*Cape Cod, and Miscellanies*, pp. 443, 444; *Misc.*, Riv. 240, 241.]

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And in these six weeks what a variety of themes he has touched on! There are words in that letter to his wife, respecting the education of his daughters, which deserve to be framed and hung over every mantelpiece in the land. Compare their earnest wisdom with that of Poor Richard! [1]

> "He nothing common did or mean
> Upon that memorable scene,
> . . . . . .
> Nor called the gods with vulgar spite,
> To vindicate his helpless right;
> But bowed his comely head
> Down, as upon a bed." [2]

Years are no longer required for a revolution of public opinion; days, nay hours, produce marked changes. Fifty who were ready to say, on going into some meeting in honor of him, that he ought to be hung, will not say it when they come out. They hear his words read, every one of which "conveys the perfect charm;" they see the earnest faces of the congregation; and perhaps they join in singing the hymn in his praise.

What confessions it has extorted from the cold and conservative! Witness the Newton letter.

The order of instruction has been reversed. I hear that the preacher says that his act was a failure, while to some extent he eulogizes the man. The class-teacher, after the services, tells his grown-up pupils that at first he thought as the preacher does now, but now he thinks that John Brown was right. But it is under-

[1] [*Cape Cod, and Miscellanies*, p. 447; *Misc.*, Riv. 244, 245.]
[2] [*Cape Cod, and Miscellanies*, p. 449; *Misc.*, Riv. 247.]

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stood that the pupils are as much ahead of the teacher as he is ahead of the priest; and the very little boys at home ask their parents why God did not save him.

They, whether in the church or out of it, who adhere to the spirit and abandon the letter, and who are accordingly called infidel, have been foremost in this movement.[1]

I took out my boots, which I have not worn since last spring, with the mud and dust of spring still on them, and went forth in the snow. That is an era, when, in the beginning of the winter, you change from the shoes of summer to the boots of winter.

Dec. 8. Here is a better *glaze* than we have yet had, for it snowed and rained in the night.

I go to Pleasant Meadow, — or rather toward the sun, for the glaze shows best so. The wind has risen and the trees are stiffly waving with a brattling sound. The birches, seen half a mile off toward the sun, are the purest dazzling white of any tree, probably because their stems are not seen at all. It is only those seen at a particular angle between us and the sun that appear thus.

Day before yesterday the ice which had fallen from the twigs covered the snow beneath in oblong pieces one or two inches long, which C. well called lemon-drops.

When a noble deed is done, who is likely to appreciate it? They who are noble themselves. I am not surprised that certain of my neighbors speak of John Brown as an ordinary felon. Who are they? They

[1] [*Cape Cod, and Miscellanies*, pp. 442, 443; *Misc.*, Riv. 238, 239.]

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have much flesh, or at least much coarseness of some kind. They are not ethereal natures, or the dark qualities predominate in them, or they have much office. Several of them are decidedly pachydermatous. How can a man behold the light who has no answering inward light? They are true to their *sight*, but when they look this way they *see* nothing, they are blind. For the children of the light to contend with them is as if there should be a contest between eagles and owls. Show me a man who feels bitterly toward John Brown, and then let me hear what noble verse he can repeat.[1]

Certain persons disgraced themselves by hanging Brown in effigy in this town on the 2d. I was glad to know that the only four whose names I heard mentioned in connection with it had not been long resident here, and had done nothing to secure the respect of the town.

It is not every man who can be a Christian, whatever education you give him. It is a matter of constitution and temperament. I have known many a man who pretended to be a Christian, in whom it was ridiculous, for he had no genius for it.[2]

The expression "a *liberal* education" originally meant one worthy of freemen. Such is education simply in a true and broad sense. But education ordinarily so called — the learning of trades and professions which is designed to enable men to earn their living, or to fit them for a particular station in life — is *servile*.[3]

[1] [*Cape Cod, and Miscellanies*, pp. 444, 445; *Misc.*, Riv. 241, 242.]
[2] [*Cape Cod, and Miscellanies*, p. 445; *Misc.*, Riv. 242.]
[3] [*Cape Cod, and Miscellanies*, p. 448; *Misc.*, Riv. 245.]

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Two hundred years ago is about as great an antiquity as we can comprehend or often have to deal with. It is nearly as good as two thousand to our imaginations. It carries us back to the days of aborigines and the Pilgrims; beyond the limits of oral testimony, to history which begins already to be enamelled with a gloss of fable, and we do not quite believe what we read; to a strange style of writing and spelling and of expression; to those ancestors whose names we do not know, and to whom we are related only as we are to the race generally. It is the age of our very oldest houses and cultivated trees. Nor is New England very peculiar in this. In England also, a house two hundred years old, especially if it be a wooden one, is pointed out as an interesting relic of the past.

When we read the history of the world, centuries look cheap to us and we find that we had doubted if the hundred years preceding the life of Herodotus seemed as great an antiquity to him as a hundred years does to us. We are inclined to think of all Romans who lived within five hundred years B. C. as *contemporaries* to each other. Yet Time moved at the same deliberate pace then as now. Pliny the Elder, who died in the 79th year of the Christian era, speaking of the paper made of papyrus which was then used, — how carefully it was made, — says, *just as we might say*, as if it were something remarkable: "There are, thus, ancient memorials in the handwriting of Caius and Tiberius Gracchus, almost two hundred years old, which I have seen in the possession of Pomponius Secundus the poet, a very illustrious citizen. As for

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the handwriting of Cicero, Augustus, and Virgil, we very often meet with it still." This too, according to Pliny, was the age of the oldest wines. "In one year the quality of all kinds of wine was peculiarly good. In the consulship of Lucius Opimius, when Caius Gracchus, disturbing the people with seditions, was killed, there was that bright and serene weather (*ea caeli temperies fulsit*) which they call a *cooking* (of the grape) by the heat of the sun. This was in the year of the city 634. And some of those wines have lasted to this day, almost two hundred years, now reduced to the appearance of candied honey (*in speciem redacta mellis asperi*)." [1]

How is it that what is actually present and transpiring is commonly perceived by the common sense and understanding only, is bare and bald, without halo or the blue enamel of intervening air? But let it be past or to come, and it is at once idealized. As the man dead is spiritualized, so the fact remembered is idealized. It is a deed ripe and with the bloom on it. It is not simply the understanding now, but the imagination, that takes cognizance of it. The imagination requires a long range. It is the faculty of the poet to see present things as if, in this sense, also past and future, as if distant or universally significant. We do not know poets, heroes, and saints for our contemporaries, but we locate them in some far-off vale, and, the greater and better, the further off we [are] accustomed to consider them. We believe in spirits, we believe in beauty,

[1] Bohn's translation says, "have assumed the consistency of honey with a rough taste ! !"

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but not now and here. They have their abode in the remote past or in the future.

Dec. 9. Suddenly cold last night. The river and Fair Haven Pond froze over *generally* (I see no opening as I walk) last night, though they were only frozen along the edges yesterday. This is unusually sudden.

How prominent the late or fall flowers are, now withered above the snow, — the goldenrods and asters, Roman wormwood, etc., etc.! These late ones have a sort of life extended into winter, hung with icy jewelry.

I observe at mid-afternoon, the air being very quiet and serene, that peculiarly softened western sky, which perhaps is seen commonly after the first snow has covered the earth. There are many whitish filmy clouds a third of the way to the zenith, generally long and narrow, parallel with the horizon, with indistinct edges, alternating with the blue. And there is just enough *invisible* vapor, perhaps from the snow, to soften the blue, giving it a slight greenish tinge. Thus, methinks, it often happens that as the weather is harder the sky seems softer. It is not a cold, hard, glittering sky, but a warm, soft, filmy one.

The prosaic man sees things baldly, or with the bodily sense; but the poet sees them clad in beauty, with the spiritual sense.

Editors are still pretty generally saying that Brown's was a "crazy scheme," and their one only evidence and proof of it is that it cost him his life. I have no doubt that, if he had gone with five thousand men, liberated a thousand slaves, killed a hundred or two

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slaveholders, and had as many more killed on his own side, but not lost his own life, such would have been prepared to call it by another name. Yet he has been far more successful than that. They seem to know nothing about living or dying for a principle.[1]

Abel Brooks told me this anecdote on the 28th *ult.*: —

"I don't know as you remember Langley Brown. Dr. Ripley asked him to bring him a load of the best oak wood he could get. So Langley he picked out a first-rate load of white oak, and teamed it to his door. But when the doctor saw it he said at once that it would n't do, he did n't want any such stuff as that. Langley next picked out a load of yellow oak and carried that to the doctor; but the latter answered, as quickly as before, that that was not what he wanted at all. Then Langley selected a load of red oak, very straight and smooth, and carted that to the doctor's, and the moment he saw it he exclaimed, 'Ah, that 's what I want, Mr. Brown!'"

Dec. 10. Get in my boat, in the snow. The bottom is coated with a glaze.

Dec. 11. At 2 P. M. begins to snow, and snows till night. Still, normal storm, large flakes, warm enough, lodging.

See one sheldrake in Walden. As I stand on the railroad at Walden, at R. W. E.'s crossing, the sound of the snowflakes falling on the dry oak leaves (which

[1] [*Cape Cod, and Miscellanies*, pp. 445, 446; *Misc.*, Riv. 242, 243.]

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hold on) is exactly like a rustling produced by a steady but slight breeze. But there is no wind. It is a gentle and uninterrupted susurrus.

This light snow, which has been falling for an hour, resting on the horizontal spray of the hemlocks, produces the effect of so many crosses, or checker or lattice work.

Dec. 12. P. M. — To Pine Hill and round Walden.

Seeing a little hole in the side of a dead white birch, about six feet from the ground, I broke it off and found it to be made where a rotten limb had broken off. The hole was about an inch over and was of quite irregular and probably natural outline, and, within, the rotten wood had been removed to the depth of two or three inches, and on one side of this cavity, under the hole, was quite a pile of bird-droppings. The diameter of the birch was little more than two inches, — if at all. Probably it was the roosting-place of a chickadee. The bottom was an irregular surface of the rotten wood, and there was nothing like a nest.

There is a certain Irish woodchopper who, when I come across him at his work in the woods in the winter, never fails to ask me what time it is, as if he were in haste to take his dinner-pail and go home. This is not as it should be. Every man, and the woodchopper among the rest, should love his work as much as the poet does his. All good political arrangements proceed on this supposition. If labor mainly, or to any considerable degree, serves the purpose of a police, to

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keep men out of mischief, it indicates a rottenness at the foundation of our community.

The night comes on early these days, and I soon see the pine tree tops distinctly outlined against the dun (or amber) but cold western sky.

The snow having come, we see where is the path of the partridge, — his comings and goings from copse to copse, — and now first, as it were, we have the fox for our nightly neighbor, and countless tiny deer mice. So, perchance, if a still finer substance should fall from heaven (iodine?), something delicate enough to receive the trace of their footsteps, we should see where unsuspected spirits and faery visitors had hourly crossed our steps, had held conventions and transacted their affairs in our midst. No doubt such subtle spirits transact their affairs in our midst, and we may perhaps invent some sufficiently delicate surface to catch the impression of them.

If in the winter there are fewer men in the fields and woods, — as in the *country* generally, — you see the tracks of those who had preceded you, and so are more reminded of them than in summer.

As I talked with the woodchopper who had just cleared the top of Emerson's I got a new view of the mountains over his pile of wood in the foreground. They were very grand in their snowy mantle, which had a slight tinge of purple. But when afterward I looked at them from a higher hill, where there was no woodpile in the foreground, they affected me less. It is now that these mountains, in color as well as form, most resemble the clouds.

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I am inclined to think of late that as much depends on the state of the bowels as of the stars. As are your bowels, so are the stars.

Dec. 13. P. M. — On river to Fair Haven Pond.

My first true winter walk is perhaps that which I take on the river, or where I cannot go in the summer. It is the walk peculiar to winter, and now first I take it. I see that the fox too has already taken the same walk before me, just along the edge of the button-bushes, where not even he can go in the summer. We both turn our steps hither at the same time.

There is now, at 2.30 P. M., the melon-rind arrangement of the clouds. Really parallel columns of fine mackerel sky, reaching quite across the heavens from west to east, with clear intervals of blue sky, and a fine-grained vapor like spun glass extending in the same direction beneath the former. In half an hour all this mackerel sky is gone.

What an ever-changing scene is the sky with its drifting cirrhus and stratus! The spectators are not requested to take a recess of fifteen minutes while the scene changes, but, walking commonly with our faces to the earth, our thoughts revert to other objects, and as often as we look up the scene has changed. Now, I see, it is a column of white vapor reaching quite across the sky, from west to east, with locks of fine hair, or tow that is carded, combed out on each side, — surprising touches here and there, which show a peculiar state of the atmosphere. No doubt the best weather-signs are in these forms which the vapor takes. When

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I next look up, the locks of hair are perfect fir trees with their recurved branches. (These trees extend at right angles from the side of the main column.) This appearance is changed all over the sky in one minute. Again it is pieces of asbestos, or the vapor takes the curved form of the surf or breakers, and again of flames.

But how long can a man be in a mood to watch the heavens? That melon-rind arrangement, so very common, is perhaps a confirmation of Wise the balloonist's statement that at a certain height there is a current of air moving from west to east. Hence we so commonly see the clouds arranged in parallel columns in that direction.

What a spectacle the subtle vapors that have their habitation in the sky present these winter days! You have not only ever-varying forms of a given type of cloud, but various types at different heights or hours. It is a scene, for variety, for beauty and grandeur, out of all proportion to the attention it gets. Who watched the forms of the clouds over this part of the earth a thousand years ago? Who watches them to-day?

Now that the river is frozen we have a sky under our feet also. Going over black ice three or four inches thick, only reassured by seeing the thickness at the cracks, I see it richly marked internally with large whitish figures suggesting rosettes of ostrich-feathers or coral. These at first appear to be a dust on the surface, but, looking closely, are found to be at various angles with it internally, in the grain. The work of crystallization. Often you see as it were a sheaf of feathered arrows

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five or six feet long, very delicate but perfectly straight, their planes making a very slight angle with the surface of the ice, and yet no seam is to be detected. The black floor is by these divided into polygonal segments, for the most part geometrically straight-sided. Their position merely suggests a cleavage which has no existence. Perhaps it is the angle of excidence answering to the angle of incidence at which the sun's light and heat strikes the ice at different hours!!

I walk thus along the riverside, perhaps between the button-bushes and the meadow, where the bleached and withered grass — the *Panicum virgatum* and blue-joint and wool-grass — rustle amid the osiers which have saved them from the scythe.

When the snow is only thus deep, the yellowish straw-color of the sedge in the meadows rising above the snow is now first appreciated, seen between the ice and the snow-clad land.

Near the mouth of Well Meadow Brook, I see a musquash under the black ice of the pond. It is ten or twelve rods from a cabin, which must be the nearest open place, and it moves off slowly, pushing against the ice with its feet, toward the middle of the pond, and as I follow, it at length sinks to the bottom and is lost. Did it go down for concealment or for air? Here was a musquash at least a dozen rods from any hole, and it did not swim toward its cabin.

I see, in the Pleasant Meadow field near the pond, some little masses of snow, such as I noticed yesterday in the open land by the railroad causeway at the Cut. I could not account for them then, for I did not

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go to them, but thought they might be the remainders of drifts which had been blown away, leaving little perpendicular masses six inches or a foot higher than the surrounding snow in the midst of the fields. Now I detect the cause. These (which I see to-day) are the remains of snowballs which the wind of yesterday rolled up in the moist snow. The morning was mild, and the snow accordingly soft and moist yet light, but in the middle of the day a strong northwest wind arose, and before night it became quite hard to bear.

These masses which I examined in the Pleasant Meadow field were generally six or eight inches high — though they must have wasted and settled considerably — and a little longer than high, presenting a more or less fluted appearance externally. They were hollow cylinders about two inches in diameter within, like muffs. Here were a dozen within two rods square, and I saw them in three or four localities miles apart, in almost any place exposed to the sweep of the northwest wind. There was plainly to be seen the furrow in the snow produced when they were rolled up, in the form of a very narrow pyramid, commencing perhaps two inches wide, and in the course of ten feet (sometimes of four or five only) becoming six or eight inches wide, when the mass was too heavy to be moved further. The snow had been thus rolled up even, like a carpet. This occurred on perfectly level ground and also where the ground rose gently to the southeast. The ground was not laid bare. That wind must have rolled up masses thus till they were a foot in diameter. It is certain, then, that a sudden strong wind when the snow

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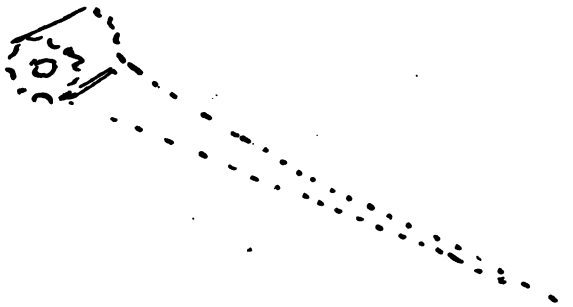

is moist but light (it had fallen the afternoon previous) will catch and roll it up as a boy rolls up his ball. These white balls are seen far off over the fields.

When I reach the causeway at the Cut, returning, the sun has just set, — a perfect winter sunset, so fair and pure, with its golden and purple isles. I think the summer rarely equals it. There are real damask-colored isles or continents north of the sun's place, and further off northeast they pass into bluish purple. Hayden's house, over which I see them, seems the abode of the blessed. The east horizon also is purple. But that part of the parallel cloud-columns overhead is now invisible. At length the purple travels westward, as the sun sinks lower below the horizon, the clouds overhead are brought out, and so the purple glow glides down the western sky.

Virgil's account of winter occupations in the First Georgic, line 291, applies well enough to New England: —

"Some keep at work by the late light of the winter
Fire, and point torches with a sharp iron.
In the meanwhile the wife, relieving her long labor with her

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Singing, thickens the webs with the shrill slay;
Or boils down the liquor of sweet must with fire,
And skims off the foam of the boiling kettle with leaves.
. . . . . .
. . Winter is an idle time to the husbandman.
In cold weather they commonly enjoy what they have laid up,
And jovial they give themselves up to mutual feasting:
Genial winter invites this and relaxes their cares;
As when now the laden keel has touched its port,
And the joyful sailors have placed a crown on the stern.
However, now is the time to gather acorns,
And laurel berries, and the olive, and bloody (colored) myrtle berries;
Now to set snares for cranes,[1] and deer,
And chase the long-eared hares;
. . . . . .
When the snow lies deep, and the rivers are full of drifting ice."

I saw yesterday where fox-hunters with a sleigh and hounds had improved the first shallow snow to track their game. They thread the woods by old and grown-up and forgotten paths, where no others would think to drive.

Dec. 14. At 2 P. M. begins to snow again. I walk to Walden.

Snow-storms might be classified. This is a fine, dry snow, drifting nearly horizontally from the north, so that it is quite blinding to face, almost as much so as sand. It is cold also. It is drifting but not accumulating fast. I can see the woods about a quarter of a mile distant through it. That of the 11th was a still storm, of large flakes falling gently in the quiet air, like so many white feathers descending in different directions when seen against a wood-side, — the regular snow-storm such as is painted. A myriad falling flakes weaving a coarse

[1] Say partridges.

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garment by which the eye is amused. The snow was a little moist and the weather rather mild. Also I remember the perfectly crystalline or *star* snows, when each flake is a perfect six(?)-rayed wheel. This must be the *chef-d'œuvre* of the Genius of the storm. Also there is the pellet or shot snow, which consists of little dry spherical pellets the size of robin-shot. This, I think, belongs to cold weather. Probably never have much of it. Also there is sleet, which is half snow, half rain.

The *Juncus tenuis*, with its conspicuous acheniums, is very noticeable now, rising above the snow in the wood-paths, commonly aslant.

Dec. 15. The first kind of snow-storm, or that of yesterday, which ceased in the night after some three inches had fallen, was that kind that makes handsome drifts behind the walls. There are no drifts equal to these behind loosely built stone walls, the wind passing between the stones. Slight as this snow was, these drifts now extend back four or five feet and as high as the wall, on the north side of the Corner Bridge road. The snow is scooped out in the form of easy-chairs, or of shells or *plinths*, if that is the name for them.

The backs of the chairs often inclining to fall off.

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A man killed a wild goose a day or two since in Spencer Brook, near Legross's.

I hear from J. [?] Moore that one man in Bedford has got eighteen minks the last fall.[1]

Philosophy is a Greek word by good rights, and it stands almost for a Greek thing. Yet some rumor of it has reached the commonest mind. M. Miles, who came to collect his wood bill to-day, said, when I objected to the small size of his wood, that it was necessary to split wood fine in order to cure it well, that he had found that wood that was more than four inches in diameter would not dry, and moreover a good deal depended on the manner in which it was corded up in the woods. He piled his high and tightly. If this were not well done the stakes would spread and the wood lie loosely, and so the rain and snow find their way into it. And he added, "I have handled a good deal of wood, and I think that I understand the *philosophy* of it."

Dec. 16. A. M. — To Cambridge, where I read in Gerard's Herbal.[2] His admirable though quaint descriptions are, to my mind, greatly superior to the modern more scientific ones. He describes not according to rule but to his natural delight in the plants. He brings them vividly before you, as one who has seen and delighted in them. It is almost as good as to see the plants themselves. It suggests that we cannot too often get rid of the barren assumption that is

[1] Farmer says he probably bought most of them.

[2] *Vide* extracts from preface made in October, 1859.

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in our science. His leaves are leaves; his flowers, flowers; his fruit, fruit. They are green and colored and fragrant. It is a man's knowledge added to a child's delight. Modern botanical descriptions approach ever nearer to the dryness of an algebraic formula, as if $x + y$ were = to a love-letter. It is the keen joy and discrimination of the child who has just seen a flower for the first time and comes running in with it to its friends. How much better to describe your object in fresh English words rather than in these conventional Latinisms! He has really seen, and smelt, and tasted, and reports his sensations.

Bought a book at Little & Brown's, paying a ninepence more on a volume than it was offered me for elsewhere. The customer thus pays for the more elegant style of the store.

Dec. 17. P. M. — To Walden.

The snow being some three or four inches deep, I see rising above it, *generally*, at my old bean-field, only my little white pines set last spring in the midst of an immense field of *Solidago nemoralis*, with a little sweet-fern (*i. e.* a large patch of it on the north side). What a change there will be in a few years, this little forest of goldenrod giving place to a forest of pines!

By the side of the Pout's Nest, I see on the pure white snow what looks like dust for half a dozen inches under a twig. Looking closely, I find that the twig is hardhack and the dust its slender, light-brown, chaffy-

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looking seed, which falls still in copious showers, dusting the snow, when I jar it; and here are the tracks of a sparrow which has jarred the twig and picked the minute seeds a long time, making quite a hole in the snow. The seeds are so fine that it must have got more snow than seed at each peck. But they probably look large to its microscopic eyes. I see, when I jar it, that a meadow-sweet close by has quite similar, but larger, seeds. This the reason, then, that these plants rise so high above the snow and retain their seed, dispersing it on the least jar over each successive layer of snow beneath them; or it is carried to a distance by the wind. What abundance and what variety in the diet of these small granivorous birds, while I find only a few nuts still! These stiff weeds which no snow can break down hold their provender. What the cereals are to men, these are to the sparrows. The only threshing they require is that the birds fly against their spikes or stalks. A little further I see the seed-box (?) (*Ludwigia*) full of still smaller, yellowish seeds. And on the ridge north is the track of a partridge amid the shrubs. It has hopped up to the low clusters of smooth sumach berries, sprinkled the snow with them, and eaten all but a few. Also, here only, or where it has evidently jarred them down — whether intentionally or not, I am not sure — are the large oval seeds of the stiff-stalked lespedeza, which I suspect it ate, with the sumach berries. There is much solid food in them. When the snow is deep the birds could easily pick the latter out of the heads as they stand on the snow.

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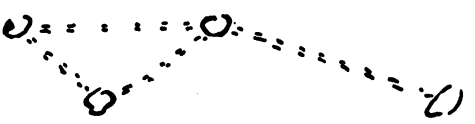
I observe, then, eaten by birds to-day, the seed of hardhack and meadow-sweet, sumach, and probably lespedeza, and even seed-box.

Under the hill, on the southeast side of R. W. E.'s lot, where the hemlock stands, I see many tracks of squirrels. The dark, thick green of the hemlock (amid the pines) seems to attract them as a covert. The snow under the hemlock is strewn with the scales of its cones, which they (and *perhaps* birds?) have stripped off, and some of its little winged seeds. It is pleasant to see the tracks of these squirrels (I am not sure whether they are red or gray or both, for I see none) leading straight from the base of one tree to that of another, thus leaving untrodden triangles, squares, and polygons of every form, bounded by much trodden highways. One, two, three, and the track is lost on the upright bole of a pine, — as if they had played at base-running from goal to goal, while pine cones were thrown at them on the way. The tracks of two or three suggest a multitude. You come thus on the tracks of these frisky and volatile (semivolitant) creatures in the midst of perfect stillness and solitude, as you might stand in a hall half an hour after the dancers had departed.



I see no nests in the trees, but numerous holes through the snow into the earth, whence they have emerged. They have loitered but little on the snow, spending their time chiefly on the trees, their castles, when abroad. The snow is strewn not only with hemlock

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scales, but, under other trees, with the large white pine scales for rods together where there is no track, the wind having scattered them as they fell, and also the shells of hickory-nuts. It reminds me of the platform before a grocery where nuts are sold. You see many places where they have probed the snow for these white pine cones, evidently those which they cut off green and which accordingly have not opened so as to drop the seeds. This was perhaps the design in cutting them off so early, — thus to preserve them under the snow (not dispersed). Do they find them by the scent? At any rate they will dig down through the snow and come right upon a pine cone or a hickory-nut or an acorn, which you and I cannot do.

Two or three acres of Walden, off the bar, not yet frozen. Saw in [it] a good-sized black duck, which did not dive while I looked. I suspect it must have been a *Fuligula*, though I saw no white.

Dec. 18. Rains.

P. M. — To Assabet opposite Tarbell's, *via* Abel Hosmer's.

It rains but little this afternoon, though there is no sign of fair weather. Only the mist appears thinner here and there from time to time. It is a lichen day. The pitch pines on the south of the road at the Colburn farm are very inspiriting to behold. Their green is as much enlivened and freshened as that of the lichens. It suggests a sort of sunlight on them, though not even a patch of clear sky is seen to-day. As dry and olive or slate-colored lichens are of a fresh and living green,

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so the already green pine-needles have acquired a far livelier tint, as if they enjoyed this moisture as much as the lichens do. They seem to be lit up more than when the sun falls on them. Their trunks, and those of trees generally, being wet, are very black, and the bright lichens on them are so much the more remarkable.

I see three shrikes in different places to-day, — two on the top of apple trees, sitting still in the storm, on the lookout. They fly low to another tree when disturbed, much like a bluebird, and jerk their tails once or twice when they alight.

Apples are thawed now and are very good. Their juice is the best kind of bottled cider that I know. They are all good in this state, and your jaws are the cider-press.[1]

The thick, low cloud or mist makes novel prospects for us. In the southwest horizon I see a darker mass of it stretched along, seen against itself. The oak woods a quarter of a mile off appear more uniformly red than ever. They are not only redder for being wet, but, through the obscurity of the mist, one leaf runs into another and the whole mass makes one impression. The withered oak leaves, being thoroughly saturated with moisture, are of a livelier color. Also some of the most withered white oak leaves with roundish black spots like small lichens are quite interesting now.

Dec. 19. Yarrow[2] too is full of seed now, and the common johnswort has some seed in it still.

[1] [*Excursions*, pp. 319, 320; Riv. 393.] [2] Tansy?

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Farmer has lately been riding about in the neighboring towns west and northwest, as far as Townsend, buying up their furs, — mink, musquash, and fox. Says that Stow is as good a town for mink as any, but none of them have more musquash than Concord. He, however, saw but one mink-track in all his rides, and thinks that they are scarce this year.

When a man is young and his constitution and body have not acquired firmness, *i. e.*, before he has arrived at middle age, he is not an assured inhabitant of the earth, and his compensation is that he is not quite earthy, there is something peculiarly tender and divine about him. His sentiments and his weakness, nay, his very sickness and the greater uncertainty of his fate, seem to ally him to a noble race of beings, to whom he in part belongs, or with whom he is in communication. The young man is a demigod; the grown man, alas! is commonly a mere mortal. He is but half here, he knows not the men of this world, the powers that be. They know him not. Prompted by the reminiscence of that other sphere from which he so lately arrived, his actions are unintelligible to his seniors. He bathes in light. He is interesting as a stranger from another sphere. He really thinks and talks about a larger sphere of existence than this world. It takes him forty years to accommodate himself to the carapax of this world. This is the age of poetry. Afterward he may be the president of a bank, and go the way of all flesh. But a man of settled views, whose thoughts are few and hardened like his bones, is truly mortal, and his only resource is to say his prayers.

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Dec. 20. A. M. — To T. Wheeler wood-lot.

Snows very fast, large flakes, a very lodging snow, quite moist; turns to rain in afternoon. If we leave the sleigh for a moment, it whitens the seat, which must be turned over. We are soon thickly covered, and it lodges on the twigs of the trees and bushes, — there being but little wind, — giving them a very white and soft, spiritual look. Gives them a still, soft, and light look. When the flakes fall thus large and fast and are so moist and melting, we think it will not last long, and this turned to rain in a few hours, after three or four inches had fallen.

To omit the first mere whitening, —

There was the snow of the 4th December.

11th was a lodging snow, it being mild and still, like to-day (only it was not so moist). Was succeeded next day noon by a strong and cold northwest wind.

14th, a fine, dry, cold, driving and drifting storm.

20th (to-day's), a very lodging, moist, and large-flaked snow, turning to rain. To be classed with the 11th in the main. This wets the woodchopper about as much as rain.

Dec. 21. A. M. — A fine winter day and rather mild. Ride to T. Wheeler's lot. See a red squirrel out in two places. Do they not come out chiefly in the forenoon? Also a large flock of snow buntings, fair and pleasant as it is. Their whiteness, like the snow, is their most remarkable peculiarity.

The snow of yesterday having turned to rain in the afternoon, the snow is no longer (now that it is frozen)

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a uniformly level white, as when it had just fallen, but on all declivities you see it, even from a great distance, strongly marked with countless furrows or channels. These are about three inches deep, more or less parallel where the rain ran down. On hillsides these reach from top to bottom and give them a peculiar combed appearance. Hillsides around a hollow are thus very regularly marked by lines converging toward the centre at the bottom. In level fields the snow is not thus furrowed, but dimpled with a myriad little hollows where the water settled, and perhaps answering slightly to the inequalities of the ground. In level woods I do not see this regular dimpling — the rain being probably conducted down the trunks — nor the furrows on hillsides; the rain has been differently distributed by the trees.[1]

This makes a different impression from the fresh and uniformly level white surface of recently fallen snow. It is now, as it were, wrinkled with age. The incipient slosh of yesterday is now frozen, and makes good sleighing and a foundation for more.

Dec. 22. Another fine winter day.

P. M. — To Flint's Pond.

C. is inclined to walk in the road, it being better walking there, and says: "You don't wish to see anything but the sky to-day and breathe this air. You could walk in the city to-day, just as well as in the country. You only wish to be out." This was because I inclined to walk in the woods or by the river.

[1] *Vide* plate [*sic*] [three] pages forward.

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As we passed under the elm beyond George Heywood's, I looked up and saw a fiery hangbird's nest dangling over the road. What a reminiscence of summer, a fiery hangbird's nest dangling from an elm over the road when perhaps the thermometer is down to −20 (?), and the traveller goes beating his arms beneath it! It is hard to recall the strain of that bird then.

We pause and gaze into the Mill Brook on the Turnpike bridge. C. says that in Persia they call the ripple-marks on sandy bottoms "chains" or "chain-work." I see a good deal of cress there, on the bottom, for a rod or two, the only green thing to be seen. No more slimy than it usually is beneath the water in summer. Is not this the plant which most, or most conspicuously, preserves its greenness in the winter? Is it not now most completely in its summer state of any plant? So far as the water and the mud and the cress go, it is a summer scene. It is green as ever, and waving in the stream as in summer.

How nicely is Nature adjusted! The least disturbance of her equilibrium is betrayed and corrects itself. As I looked down on the surface of the brook, I was surprised to see a leaf floating, as I thought, up the stream, but I was mistaken. The motion of a particle of dust on the surface of any brook far inland shows which way the earth declines toward the sea, which way lies the constantly descending route, and the only one.

I see in the chestnut woods near Flint's Pond where squirrels have collected the small chestnut burs left on the trees and opened them, generally at the base of

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the trunks on the snow. These are, I think, all small and imperfect burs, which do not so much as open in the fall and are rejected then, but, hanging on the tree, they have this use at least, as the squirrels' winter food.

Three men are fishing on Flint's Pond, where the ice is seven or eight inches thick. I look back to the wharf rock shore and see that rush (cladium I have called it), the warmest object in the landscape, — a narrow line of warm yellow rushes — for they reflect the western light, — along the edge of the somewhat snowy pond and next the snow-clad and wooded shore. This rush, which is comparatively inconspicuous in the summer, becomes thus in the winter afternoons a conspicuous and interesting object, lit up by the westering sun.

The fisherman stands erect and still on the ice, awaiting our approach, as usual forward to say that he has had no luck. He has been here since early morning, and for some reason or other the fishes won't bite. You won't catch him here again in a hurry. They all tell the same story. The amount of it is he has had "fisherman's luck," and if you walk that way you may find him at his old post to-morrow. It is hard, to be sure, — four little fishes to be divided between three men, and two and a half miles to walk; and you have only got a more ravenous appetite for the supper which you have not earned. However, the pond floor is not a bad place to spend a winter day.

On what I will call Sassafras Island, in this pond, I notice the largest and handsomest high blueberry bush that I ever saw, about ten feet high. It divides

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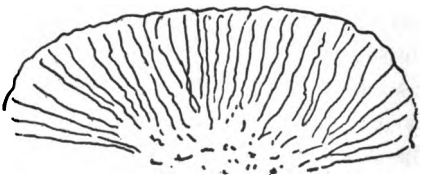
at the ground into four stems, all very large and the largest three inches in diameter (one way) at three feet high, and at the ground, where they *seem* to form one trunk (at least *grown* together), nine inches in diameter. These stems rise upward, spreading a little in their usual somewhat zigzag manner, and are very handsomely clothed with large gray and yellow lichens with intervals of the (*smoothish?* and) finely divided bark. The bark is quite reddish near the ground. The top, which is spreading and somewhat flattish or corymbose, consists of a great many fine twigs, which give it a thick and dark appearance against the sky compared with the more open portion beneath. It was perfectly sound and vigorous.

In a (apparently kingbird's?) nest on this island I saw three cherry-stones, as if it had carried home this fruit to its young. It was, outside, of gnaphalium and saddled on a low limb. Could it have been a cherry-bird?

The cladium (?) retains its seeds over the ice, little conical, sharp-pointed, flat-based, dark-brown, shining seeds. I notice some seeds left on a large dock, but see none of parsnips or other umbelliferous plants.

The furrows in the snow on the hillsides look somewhat like this:—



Dec. 23. The third fine, clear, bright, and rather mild winter day.

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P. M. — To Ball's Hill across meadow.

The gardener at Sleepy Hollow says that they caught many small pouts and some pickerel that weighed half a pound (!) in the little pond lately dug there.[1] I think this pond, say a third of an acre, was commenced about three years ago and completed last summer. It has no inlet and a very slight outlet, a shallow ditch that previously existed in the meadow, but in digging they have laid open two or three very deep spring-holes, and the pickerel were found in them. These fishes, no doubt, came up the shallow ditch. This proves that if you dig a pond in a meadow and connect it by the smallest rill or ditch with other water in which fishes live, however far off, the pond will be at once stocked with fishes. They are always ready to extend their territory.

The Great Meadows are more than half covered with ice, and now I see that there was a very slight fall of snow last night. It is only betrayed here, having covered the ice about an eighth of an inch thick, except where there are cracks running quite across the meadow, where the water has oozed a foot or two each way and dissolved the snow, making conspicuous dark lines.

In this slight snow I am surprised to see countless tracks of small birds, which have run over it in every direction from one end to the other of this great meadow since morning. By the length of the hind toe I know them to be snow buntings. Indeed, soon after I see them running still on one side of the meadow.

[1] *Vide* Oct. 10, 1860.

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I was puzzled to tell what they got by running there. Yet I [saw them] stopping repeatedly and picking up something. Of course I thought of those caterpillars which are washed out by a rain and freshet at this season, but I could not find one of them. It rained on the 18th and again the 20th, and over a good part of the meadow the top of the stubble left by the scythe rises a little above the ice, *i. e.* an inch or two, not enough to disturb a skater. The birds have run here chiefly, visiting each little collection or tuft of stubble, and found their food chiefly in and about this thin stubble. I examined such places a long time and very carefully, but I could not find there the seed of any plant whatever. It was merely the stubble of sedge, with never any head left, and a few cranberry leaves projecting. All that I could find was pretty often (in some places very often) a little black, or else a brown, spider (sometimes quite a large one) motionless on the snow or ice; and therefore I am constrained to think that they eat them, for I saw them running and picking in exactly such places a little way from me, and here were their tracks all around. Yet they are called graminivorous [*sic*]. Wilson says that he has seen them feeding on the seeds of aquatic plants on the Seneca River, clinging to their heads. I think he means wool-grass. Yet its seeds are too minute and involved in the wool. Though there was wool-grass hereabouts, the birds did not go near it. To be sure, it has but little seed now. If they are so common at the extreme north, where there is so little vegetation but perhaps a great many spiders, is it not likely that they feed on these insects?

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It is interesting to see how busy this flock is, exploring this great meadow to-day. If it were not for this slight snow, revealing their tracks but hardly at all concealing the stubble, I should not suspect it, though I might see them at their work. Now I see them running briskly over the ice, most commonly near the shore, where there is most stubble (though very little); and they explore the ground so fast that they are continually changing their ground, and if I do not keep my eye on them I lose the direction. Then here they come, with a stiff *rip* of their wings as they suddenly wheel, and those peculiar rippling notes, flying low quite across the meadow, half a mile even, to explore the other side, though that too is already tracked by them. Not the fisher nor skater range the meadow a thousandth part so much in a week as these birds in a day. They hardly notice me as they come on. Indeed, the flock, flying about as high as my head, divides, and half passes on each side of me. Thus they sport over these broad meadows of ice this pleasant winter day. The spiders lie torpid and plain to see on the snow, and if it is they that they are after they never know what kills them.

I have loitered so long on the meadow that before I get to Ball's Hill those patches of bare ice (where water has oozed out and frozen) already reflect a green light which advertises me of the lateness of the hour. You may walk eastward in the winter afternoon till the ice begins to look green, half to three quarters of an hour before sunset, the sun having sunk behind you to the proper angle. Then it is time to turn your steps home-

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ward. Soon after,[1] too, the ice began to boom, or fire its evening gun, another warning that the end of the day was at hand, and a little after the snow reflected a distinct rosy light, the sun having reached the grosser atmosphere of the earth. These signs successively prompt us once more to retrace our steps. Even the fisherman, who perhaps has not observed any sign but that the sun is ready to sink beneath the horizon, is winding up his lines and starting for home; or perhaps he leaves them to freeze in.

In a clear but pleasant winter day, I walk away till the ice begins to look green and I hear it boom, or perhaps till the snow reflects a rosy light.

I ascended Ball's Hill to see the sun set. How red its light at this hour! I covered its orb with my hand, and let its rays light up the fine woollen fibres of my glove. They were a dazzling rose-color. It takes the gross atmosphere of earth to make this redness.

You notice the long and slender light-brown or grayish downy racemes of the clethra seeds about the edges of ponds and pond-holes. The pods contain many very minute chaffy-looking seeds.

You find in the cluster of the sweet-fern fruit now one or two rather large flattish conical hard-shelled seeds with a small meat.

The pinweed — the larger (say *thymifolia*) — pods open, showing their three pretty leather-brown inner divisions open like a little calyx, a third or half containing still the little hemispherical or else triangular reddish-brown seeds. They are hard and abundant. That

[1] About same time, as noticed two or three days.

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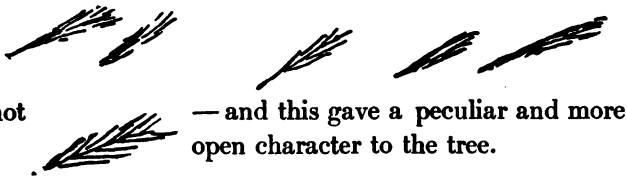
large juncus (*paradoxus*-like?) of the river meadows — long white-tailed seed — just rising above the ice is full of seed now, glossy, pale-brown, white-tailed, chaffy to look at. The wool-grass wool is at least half gone, and its minute almost white [?] seed or achenium in it; but a *little* is left, not more than the thirtieth of an inch long. It looks too minute and involved in the wool for a snow bunting to eat. The above plants are all now more or less recurved, bent by the cold and the blasts of autumn.

The now bare or empty heads of the liatris look somewhat like dusky daisies surmounted by a little button instead of a disk. The last, a stiff, round, parchment-like skin, the base on which its flowerets stood, is pierced by many little round holes just like the end of a thimble, where the cavities are worn through, and it is convex like that. It readily scales off and you can look through it.

I noticed on the 18th that the plumes of the pine which had been covered with snow and glaze and were *then* thawed and wet with the mist and rain were very much contracted or narrowed, —



not — and this gave a peculiar and more open character to the tree.

Dec. 24. P. M. — To Flint's Pond.

A strong and very cold northwest wind. I think that

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the cold winds are oftenest not northwest, but northwest by west. There is, in all, an acre or two in Walden not yet frozen, though half of it has been frozen more than a week.

I measure the blueberry bush on Flint's Pond Island. The five stems are united at the ground, so as to make one round and solid trunk thirty-one inches in circumference, but probably they have grown together there, for they become separate at about six inches above. They may have sprung from different seeds of one berry. At three feet from the ground they measure eleven inches, eleven, eleven and a half, eight, and six and a half, or, on an average, nine and a half. I climbed up and found a comfortable seat with my feet four feet above the ground, and there was room for three or four more there, but unfortunately this was not the season for berries.

There were several other clumps of large ones there. One clump close by the former contained twenty-three stems within a diameter of three feet, and their average diameter at three feet from the ground was about two inches. These had not been cut, because they stood on this small island which has little wood beside, and therefore had grown the larger. The two prevailing lichens on them were *Parmelia caperata* and *saxatilis*, extending quite around their trunks; also a little of a parmelia more glaucous than the last one, and a little green usnea and a little ramalina.[1]

This island appears to be a mere stony ridge three or four feet high, with a very low wet shore on each side,

[1] *Vide* specimens in drawer.

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even as if the water and ice had shoved it up, as at the other end of the pond.

I saw the tracks of a partridge more than half an inch deep in the ice, extending from this island to the shore, she having walked there in the slosh. They were quite perfect and reminded me of bird-tracks in stone. She may have gone there to bud on these blueberry trees. I saw where she spent the night at the bottom of that largest clump, in the snow.

This blueberry grove must be well known to the partridges; no doubt they distinguish their tops from afar.

Perhaps yet larger ones were seen here before we came to cut off the trees. Judging from those whose rings I have counted, the largest of those stems must be about sixty years old. The stems rise up in a winding and zigzag manner, one sometimes resting in the forks of its neighbor. There were many more clumps of large ones there.

Dec. 25. The last our coldest night, as yet. No doubt Walden froze over last night entirely.

P. M. — To Carlisle Bridge on river and meadow.

I now notice a great many flat, annular, glow-worm-like worms frozen in the ice of the Great Meadow, which were evidently washed out of the meadow-grass lately; but they are almost all within the ice, inaccessible to birds; are only in certain parts of the meadow, especially about that island in it, where it is shallow. It is as if they were created only to be frozen, for this must be their annual fate. I see one which seems to

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be a true glow-worm.[1] The transparent ice is specked black with them, as if they were cranberry leaves in it. You can hardly get one out now without breaking it, they are so brittle. The snow buntings are about, as usual, but I do not think that they were after *these* insects the other day.

Standing by the side of the river at Eleazer Davis's Hill, — prepared to pace across it, — I hear a sharp fine *screep* from some bird, which at length I detect amid the button-bushes and willows. The *screep* was a note of recognition meant for me. I saw that it was a novel bird to me. Watching it a long time, with my glass and without it, I at length made out these marks: It was slate-colored above and dirty-white beneath, with a broad and very conspicuous bright-orange crown, which in some lights was *red*-orange, along the middle of the head; this was bounded on each side by a black segment, beneath which was a yellow or whitish line. There was also some yellow and a black spot on the middle of the closed wings, and yellow within the tail-feathers. The ends of the wings and the tail above were dusky, and the tail forked.

It was so very active that I could not get a steady view of it. It kept drifting about behind the stems of the button-bushes, etc., half the time on the ice, and again on the lower twigs, busily looking for its prey, turning its body this way and that with great restlessness, appearing to hide from me behind the stems of the button-bush and the withered coarse grass. When I

[1] No. I compare it with description Sept. 16, 1857, and find it is not the glow-worm, though somewhat like it.

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came nearest it would utter its peculiar *screep*, or *screep screep*, or even *screep screep screep*. Yet it was unwilling to leave the spot, and when I cornered it, it hopped back within ten feet of me. However, I could see its brilliant crown, even between the twigs of the button-bush and through the withered grass, when I could detect no other part.

It was evidently the golden-crested wren, which I have not made out before. This little creature was contentedly seeking its food here alone this cold winter day on the shore of our frozen river. If it does not visit us often it is strange that it should choose such a season.

I see that the strong wind of yesterday has blown off quite a number of white pine cones, which lie on the ice opposite E. Davis's Hill.

As I crossed Flint's about 4 P. M. yesterday on my way home, when it was bitter cold, the ice cracked with an exceedingly brittle shiver, as if all the pond's crockery had gone to smash, suggesting a high degree of tension, even of dryness, — such as you hear only in very cold weather, — right under my feet, as if I had helped to crack it. It is the report of the artillery which the frost foe has discharged at me. As you are swiftly pacing homeward, taking your way across the pond, with your mittened hands in your pocket and your cap drawn down over your ears, the pond loves to give a rousing crack right under your feet, and you hear the whole pond titter at your surprise. It is bracing its nerves against the unheard-of cold that is at hand, and it snaps some of them. You hear this best where there is considerable depth and breadth of

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water, — on ponds rather than on the river and meadow. The cold strains it up so tight that some of the strings snap. On hearing that sound you redouble your haste toward home, where vestal virgins keep alive a little fire still. In the same manner the very surface of the earth cracks in frosty weather.

To-night, when I get just below Davis's Hill the ice displays its green flag and fires its evening gun as a warning to all walkers to return home.

Consider how the pickerel-fisher lives. G., whom I saw at Flint's Pond on the 22d, had been there all day, eaten all the dinner he had brought, and caught only four little fish, hardly enough for his supper, if he should cook them. His companion swore that he would not go a-fishing again for ten years. But G. said nothing of that sort. The next day I found him five miles from here on the other side of the town, with his lines set in the bay of the river off Ball's Hill. There, too, he had been tramping about from hole to hole, — this time alone, — and he had done a trifle better than the day before, for he had caught three little fish and one great one. But instead of giving up here, he concluded to leave his lines in overnight, — since his bait would die if he took them off, — and return the next morning. The next was a bitter cold day, but I hear that Goodwin had some fish to dispose of. Probably not more than a dollar's worth, however.

You may think that you need take no care to preserve your woodland, but every tree comes either from the stump of another tree or from a seed. With the present management, will there always be a fresh stump,

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or a nut in the soil, think you? Will not the nobler kinds of trees, which bear comparatively few seeds, grow more and more scarce? What is become of our chestnut wood? There are but few stumps for sprouts to spring from, and, as for the chestnuts, there are not enough for the squirrels, and nobody is planting them.

The sweet-gale rises above the ice of the meadow on each side of the river, with its brown clusters of little aments (some of its seeds begun to fall) amid its very dark colored twigs. There is an abundance of bright-yellow resin between its seeds, and the aments, being crushed between the fingers, yield an odoriferous, perhaps terebinthine (piney) fragrance and stain the fingers yellow. It is worth the while, at this season especially, when most plants are inexpressive, to meet with one so pronounced.

I see the now withered spikes of the chelone here and there, in which (when diseased?) a few of its flat winged seeds are still found.

How different are men and women, *e. g.* in respect to the adornment of their heads! Do you ever see an old or jammed bonnet on the head of a woman at a public meeting? But look at any assembly of men with their hats on; how large a proportion of the hats will be old, weather-beaten, and indented, but I think so much the more picturesque and interesting! One farmer rides by my door in a hat which it does me good to see, there is so much character in it, — so much independence to begin with, and then affection for his old friends, etc., etc. I should not wonder if there were lichens on it. Think of painting a hero in a bran-new

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hat! The chief recommendation of the Kossuth hat is that it looks old to start with, and almost as good as new to end with. Indeed, it is generally conceded that a man does not look the worse for a somewhat dilapidated hat. But go to a lyceum and look at the bonnets and various other headgear of the women and girls, — who, by the way, keep their hats on, it being too dangerous and expensive to take them off!! Why, every one looks as fragile as a butterfly's wings, having just come out of a bandbox, — as it will go into a bandbox again when the lyceum is over. Men wear their hats for use; women theirs for ornament. I have seen the greatest philosopher in the town with what the traders would call "a shocking bad hat" on, but the woman whose bonnet does not come up to the mark is at best a "bluestocking." The man is not particularly proud of his beaver and musquash, but the woman flaunts her ostrich and sable in your face.

Ladies are in haste to dress *as if* it were cold or *as if* it were warm, — though it may not yet be so, — merely to display a new dress.

Again, what an ado women make about trifles! Here is one tells me that she cannot possibly wear india-rubber boots in sloshy weather, because they have heels. Men have been wearing boots with heels from time immemorial; little boys soon learn the art, and are eager to try the experiment. The woodchoppers and teamsters, and the merchants and lawyers, go and come quietly the livelong day, and though they may meet with many accidents, I do not remember any that originated in the heels of their boots. But not so

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with women; they bolt at once, recklessly as runaway horses, the moment they get the boots on, before they have learned the wonderful art of wearing them. My informant tells me of a friend who has got a white swelling from coming down-stairs imprudently in boots, and of another seriously injured on the meeting-house steps, — for when you deal with steps, then comes the rub, — and of a third who involuntarily dashed down the front stairs, knocked a hat-tree through the side-lights, and broke I do not know how many ribs. Indeed, that quarter-inch obstruction about the heels seems to be an insuperable one to the women.

Dec. 26. P. M. — Skate to Lee's Bridge and there measure back, by pacing, the breadth of the river. After being uniformly overcast all the forenoon, still and moderate weather, it begins to snow very gradually, at first imperceptibly, this afternoon, — at first I thought I imagined it, — and at length begins to snow in earnest about 6 P. M., but lasts only a few minutes.

I see a brute with a gun in his hand, standing motionless over a musquash-house which he has destroyed. I find that he has visited every one in the neighborhood of Fair Haven Pond, above and below, and broken them all down, laying open the interior to the water, and then stood watchful, close by, for the poor creature to show its head there for a breath of air. There lies the red carcass of one whose pelt he has taken on the spot, flat on the bloody ice. And for his afternoon's cruelty that fellow will be rewarded with a ninepence, perchance. When I consider what

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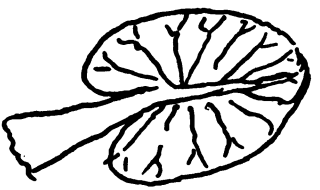
are the opportunities of the civilized man for getting ninepences and getting light, this seems to me more savage than savages are. Depend on it that whoever thus treats the musquash's house, his refuge when the water is frozen thick, he and his family will not come to a good end. So many of these houses being broken open, — twenty or thirty I see, — I look into the open hole, and find in it, in almost every instance, many pieces of the white root with the little leaf-bud curled up which I take to be the yellow lily root, — the leaf-bud unrolled has the same scent with the yellow lily. There will be half a dozen of these pointed buds, more or less green, coming to a point at the end of the root: Also I see a little coarser, what I take to be green leaf-stalk of the pontederia, for I see a little of the stipule sheathing the stalk from within it? The first unrolls to something like:[1]



In one hole there was a large quantity of this root, and these buds attached or bitten off, the root generally five or six eighths inch in diameter and one to four inches long. I think, therefore, that this root must be their principal food at this time. If you open twenty cabins you will find it in at least three quarters of them, and nothing else, unless a very little pontederia leaf-stem. I see no fresh clamshells in them, and scarcely any on the ice anywhere on the edge of open

[1] Of course it is yellow lily.

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places, nor are they probably deposited in a heap under the ice. It may be, however, that the shells are opened in this hole and then dropped in the water near by!! By eating or killing at least so many lily buds they must thin out that plant considerably.

Twice this winter I have noticed a musquash floating in a placid open place in the river when it was frozen for a mile each side, looking at first like a bit of stump or frozen meadow, but showing its whole upper outline from nose to end of tail; perfectly still till he observed me, then suddenly diving and steering under the ice toward some cabin's entrance or other retreat half a dozen or more rods off.

As some of the tales of our childhood, the invention of some Mother Goose, will haunt us when we are grown up, so the race itself still believes in some of the fables with which its infancy was amused and imposed on, *e. g.* the fable of the cranes and pygmies, which learned men endeavored to believe or explain in the last century.

Aristotle, being almost if not quite the first to write systematically on animals, gives them, of course, only popular names, such as the hunters, fowlers, fishers, and farmers of his day used. He used no scientific terms. But he, having the priority and having, as it were, created science and given it its laws, those popular Greek names, even when the animal to which they were applied cannot be identified, have been in great part preserved and make those learned far-fetched and commonly unintelligible names of genera to-day, *e. g.* Ὁλοθούριον, etc., etc. His History of Animals has thus become a very storehouse of scientific nomenclature.

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Dec. 27. Grows cold in the evening, so that our breaths condense and freeze on the windows and in the morning, —

Dec. 28, — they are like ground glass (covered with frost), and we cannot see out. Sleds creak or squeak along the dry and hard snow-path. Crows come near the houses. These are among the signs of cold weather.

The open places in the river yesterday between Lee's Bridge and Carlisle Bridge were: 1st, below Nut Meadow Brook, a rather shoal place; 2d, at Clamshell Bend, longer; 3d, at Hubbard's Bath Bend; (3½, was there not a little open at ash tree? [1]); 4th, I think there was a short opening at Lee's Bend; [2] 5th, from Monroe's to Merrick's pasture; 6th, below junction to bridge; 7th, below French's Rock; 8th, Barrett's Bar. *N. B.* — Did not observe or examine between this and the shoal below the Holt.[3] It was no doubt open at the last place and perhaps more. There was no opening between the Holt shoal and Carlisle Bridge, for there was none on the 25th.

The most solidly frozen portions are the broad and straight reaches. All broad bays are frozen hard. When you come to where the river is winding, there is shallower and swifter water — and open places as yet.

[1] Yes.

[2] Or, rather, I think it was thinly frozen?

[3] Perhaps ice between 8th and ash opening; 9th, west side Holt Bend; 10th, north side ditto; 11th, east side ditto; 12th, Holt Ford *was* open almost round the Holt. *N. B.* — But slight intervals between the last four.

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It is remarkable that the river should so suddenly contract at Pelham Pond. It begins to be Musketaquid there.

The places where the river was *certainly* (*i. e.* except 4th) open yesterday were all only five feet or less in depth, according to my map, and all except 8th at bends or else below the mouth of a brook. And all places not more than five and a quarter feet deep were open (I am doubtful only about behind Rhodes) except above Holt Bend and *perhaps* Pad Island, or possibly none need be excepted.

Hence, I should say, if you wish to ascertain where the river is five feet, or less than five feet, deep in Concord, wait till it is open for not more than half a dozen rods below Nut Meadow (it was probably some twenty the 27th), and then all open places will be five or less than five feet deep.

Dec. 29. A very cold morning, — about $-15°$ at 8 A. M. at our door.

I went to the river immediately after sunrise. I could [see] a little greenness in the ice, and also a little rose-color from the snow, but far less than before the sun set. Do both these phenomena require a gross atmosphere? Apparently the ice is greenest when the sun is twenty or thirty minutes above the horizon.

From the smooth open place behind Cheney's a great deal of vapor was rising to the height of a dozen feet or more, as from a boiling kettle. This, then, is a phenomenon of quite cold weather. I did not notice it yesterday afternoon. These open places are a sort of

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breathing-holes of the river. When I look toward the sun, now that they are smooth, they are hardly to be distinguished from the ice. Just as cold weather reveals the breath of a man, still greater cold reveals the breath of, *i. e.* warm, moist air over, the river.

I collect this morning the little shining black seeds of the amaranth, raised above the snow in its solid or dense spike.

P. M. — To Ball's Hill, skating.

Walked back, measuring the river and ice by pacing.[1]

The first open place in the main stream in Concord, or no doubt this side Carlisle Bridge, coming upstream, were [*sic*] : —

1st, Holt Ford, 10 rods by 1 (extreme width).

2d, east side Holt Bend, near last, 8 by 1½.

3d, west side Holt Bend (midway), 8 by ½.

(On the 28th it must have been open nearly all round to Holt Bend.)

4th, Barrett's Bar, 42 rods by 6 at west end, where it reaches 12 rods above ford; extends down the north side *very narrow* to the rock and only little way down the south side; can walk in middle half-way.

5th, a bar above Monument, 10 by 3.

6th, from Hunt's Bridge to Island, or say 54 rods by 4.

7th, from 8 below willow-row to 5 below boat's place, or 80+ rods by 3.

This as far as I looked to-day, but no doubt[2] the next was : —

8th, just above ash tree, probably three or four rods long.

[1] Feb. 15, 1860, when the river was much more open than Dec. 29, 1859, it was scarcely open at the narrowest place above Bound Rock, only puffed up in the channel, and the first decided opening was at Rice's Bend; all below Bound Rock to Fair Haven Pond, etc., was quite solid. Hence the statements below are true.

[2] Proved by looking the 30th.

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9th, at Hubbard's Bath Bend.
10th, Clamshell Bend.
11th, below Nut Meadow, probably two or three rods long.

This is the last in Concord. (I do not include the small openings which are to be found now at bridges.) The longest opening is that below my boat's place; next, at junction next Barrett's Bar; next, either Clamshell or Hubbard's Bath. But for area of water that below the junction is considerably the largest of all.[1]

When I went to walk it was about 10° above zero, and when I returned, 1°. I did not notice any vapor rising from the open places, as I did in the morning, when it was −16° and also −6°. Therefore the cold must be between +1° and −6° in order that vapor may rise from these places. It takes a greater degree of cold to show the breath of the river than that of man. Apparently, the river is not enough warmer than the air to permit of its rising into it, *i. e.*, evaporating, unless the air is of a very low temperature. When the air is say four or five degrees below, the water being +32°, then there is a visible evaporation. Is there the same difference, or some 40°, between the heat of the human breath and that air in which the moisture in the breath becomes visible in vapor? This has to do with the dew-point. Next, what makes the water of those open places thus warm? and is it any warmer than elsewhere? There is considerable heat reflected from a sandy bottom where the water is shallow, and at these places it is always sandy and shallow, but I doubt if this actually makes the water warmer, though it may

[1] *Vide* Jan. 22.

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melt the more opaque ice which absorbs it. The fact that Holt Bend, which is deep, is late to freeze, being narrow, seems to prove it to be the swiftness of the water and not reflected heat that prevents freezing. The water is apparently kept warm under the ice and down next to the unfrozen earth, and by a myriad springs from within the bowels of the earth.

I notice that, on the thin black ice lately formed on these open places, the breath of the water has made its way up through and is frozen into a myriad of little rosettes, which nearly cover its surface and make it white as with snow. You see the same on pretty thick ice. This occurs whenever the weather is coldest in the night or very early in the morning. Also, where these open places have lately closed, the ice for long distances over the thread of the river will often be heaved up roofwise a foot or more high and a rod wide, apparently pushed up by the heat of this breath beneath.

As I come home, I observe much thin ice, just formed as it grows colder, drifting in gauze-like masses down these open places, just as I used to see it coming down the open river when it began to freeze. In this case it is not ice which formed last night, but which is even now forming.

The musquash make a good deal of use of these open spaces. I have seen one four times in three several places this winter, or within three weeks. They improve all the open water they can get. They occasionally leave their clamshells upon the edges of them

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now. This is all the water to reflect the sky now, whether amber or purple. I sometimes see the musquash dive in the midst of such a placid purple lake.

Where the channel is broad the water is more sluggish and the ice accordingly thick, or it will answer just as well if the channel is deep, *i. e.*, if its capacity is the same, though it be very narrow. The ice will be firm there too, *e. g.* at Ash Tree Rock (though it was lately open off the willows eight or ten rods above, being less deep and narrower); and even at the deeper hole next below the opening is not where it is deep, though very narrow, but half a dozen rods below, where it is much wider.

To-night I notice the rose-color in the snow and the green in the ice *at the same time*, having been looking out for them.

The clouds were very remarkable this cold afternoon, about twenty minutes before sunset, consisting of very long and narrow white clouds converging in the horizon (melon-rind-wise) both in the west and east. They looked like the skeletons and backbones of celestial sloths, being pointed at each end, or even like porcupine quills or ivory darts sharp at each end. So long and slender, but pronounced, with a manifest backbone and marrow. It looked as if invisible giants were darting them from all parts of the sky at the setting sun. These were long darts indeed. Well underneath was an almost invisible rippled vapor whose grain was exactly at right angles with the former, all over the sky, yet it was so delicate that it did not prevent your seeing the former at all. Its filmy arrows all pointed athwart

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the others. I know that in fact those slender white cloud sloths were nearly parallel across the sky, but how much handsomer are the clouds because the sky is made to appear concave to us! How much more beautiful an arrangement of the clouds than parallel lines! At length those white arrows and bows, slender and sharp as they were, gathering toward a point in the west horizon, looked like flames even, forked and darting flames of ivory-white, and low in the west there was a piece of rainbow but little longer than it was broad.

Taking the river in Concord in its present condition, it is, with one exception, only the shallowest places that are open. Suppose there were a dozen places open a few days ago, if it has grown much colder since, the deepest of them will be frozen over; and the shallowest place in all in Concord is the latest of all to freeze, *e. g.* at the junction. So, if you get into the river at this season, it is most likely to be at the shallowest places, they being either open or most thinly frozen over. That is one consolation for you.

The exception is on the west side of the Holt (and the depth is *one side* from the opening), but that is on account of the narrowness of the river there. Indeed, the whole of Holt Bend is slow to freeze over, on account of the great narrowness and consequent swiftness of the stream there; but the two narrowest points of it are among the first to freeze over, because they are much the deepest, the rush of waters being either below or above them, where it is much shallower, though broader.

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To be safe a river should be straight and deep, or of nearly uniform depth.

I do not remember any particular swiftness in the current above the railroad ash tree, where there is still an opening (seen December 30th), and it may be owing to the very copious springs in the high bank for twenty rods. There is not elsewhere so long a high and springy bank bounding immediately on the river in the town. To be sure, it is not deep.

Dec. 30. I awake to find it snowing fast, but it slackens in a few hours. Perhaps seven or eight inches have fallen, — the deepest snow yet, and almost quite level. At first the flakes (this forenoon) were of middling size. At noon, when it was leaving off, they were of a different character. I observed them on my sleeve, — little slender spiculæ about one tenth of an inch long, little dry splinters, sometimes two forking, united at one end, or two or three lying across one another, quite dry and fine; and so it concluded.

P. M. — Going by Dodd's, I see a shrike perched on the tip-top of the topmost upright twig of an English cherry tree before his house, standing square on the topmost bud, balancing himself by a slight motion of his tail from time to time. I have noticed this habit of the bird before. You would suppose it inconvenient for so large a bird to maintain its footing there. Scared by my passing [?] in the road, it flew off, and I thought I would see if it alighted on a similar place. It flew toward a young elm, whose higher twigs were much more slender, though not quite so upright as

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those of the cherry, and I thought he might be excused if he alighted on the side of one; but no, to my surprise, he alighted without any trouble upon the very top of one of the highest of all, and looked around as before.

I spoke to the barber to-day about that whirl of hair on the occiput of most (if not all) men's heads. He said it was called the crown, and was of a spiral form, a beginning spiral, when cut short; that some had two, one on the right, the other on the left, close together. I said that they were in a sense double-headed. He said that it was an old saying that such were bred under two crowns.

I noticed the other day that even the golden-crested wren was one of the winter birds which have a black head, — in this case divided by yellow.

Those who depend on skylights found theirs but a dim, religious light this forenoon and hitherto, owing to the thickness of snow resting on them. Also cellar windows are covered, and cellars are accordingly darkened.

What a different phenomenon a musquash now from what it is in summer! Now if one floats, or swims, its whole back out, or crawls out upon the ice at one of those narrow oval water spaces in the river, some twenty rods long (in calm weather, smooth mirrors), in a broad frame of white ice or yet whiter snow, it is seen at once, as conspicuous (or more so) as a fly on a window-pane or a mirror. But in summer, how many hundreds crawl along the weedy shore or plunge in the long river unsuspected by the boatman! Even if the musquash is not there I often see the open clam-

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shell on the edge of the ice, perfectly distinct a long way off, and he is betrayed. However, the edges of these silver lakes, — winter lakes, late freezers, swift-waters, musquash mirrors, breathing-holes, — to-day, after the morning's snow, are, by the water flowing back over the thin edges and staining the snow, a distinct yellow (brown-yellow) tinge for a rod or two on every side. This shows what and how much coloring matter there is in the river water. I doubt if it would be so at Walden. No doubt, however, we here get the impurer parts of the river, the scum as it were, repeatedly washed over at these places.

Dec. 31. Thermometer at 7.45 A. M., − 1°, yet even more vapor is rising from the open water below my boat's place than on the 29th, when it was − 15°. The wind is southwesterly, *i. e.* considerably south of west. This shows that fog over the water is a phenomenon of the morning chiefly, as well in winter as in summer. You will see a fog over the water in a winter morning, though the temperature may be considerably higher than at midday when no fog is seen.

There has evidently been a slight fog generally in the night, and the trees are white with it. The crystals are directed southwesterly, or toward the wind. I think that these crystals are particularly large and numerous, and the trees (willows) particularly white, next to the open water spaces, where the vapor even now is abundantly rising. Is this fog in the night occasioned by the cold earth condensing the moisture which a warmer wind has brought to us?

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At 10 A. M., thermometer 18°. I see no vapor from the water.

Crows yesterday flitted silently, if not ominously, over the street, just after the snow had fallen, as if men, being further within, were just as far off as usual. This is a phenomenon of both cold weather and snowy. You hear nothing; you merely see these black apparitions, though they come near enough to look down your chimney and scent the boiling pot, and pass between the house and barn.

Just saw moved a white oak, Leighton's, some five inches in diameter, with a frozen mass of earth some five or five and a half feet in diameter and two plus thick. It was dug round before the frost, — a trench about a foot wide and filled with stalks, etc., — and now pried up with levers till on a level with the ground, then dragged off. It would not have cost half so much if a sloping path had been dug to it on one side so that the drag could have been placed under it in the hole and another dug at the hole it was removed to, — unless the last were planked over and it was dragged on to it.

They were teaming ice before sunrise (from Sam Barrett's Pond) on the morning of the 29th, when the thermometer was 16 or 20 degrees below. Cold work, you would say. Yet some say it is colder in thawing weather, if you have to *touch* the ice.

P. M. — To the sweet-gale meadow or swamp up Assabet.

I notice that one or more of the terminal leafets remain on the branches of the flowering fern commonly.

See where probably a shrike (do I ever see a small

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hawk in winter?) has torn a small bird in pieces and its slate-colored down and its feathers have been blown far and wide over the snow.

There is a great deal of hemlock scales scattered over the recent snow (at the Hemlocks), evidently by birds on the trees, and the wind has blown them southeast, — scales, seeds, and cones, — and I see the tracks of small birds that have apparently picked the seeds from the snow also. It may have been done by goldfinches. I see a tree sparrow hopping close by, and perhaps they eat them on the snow. Some of the seeds have blown at least fifteen rods southeast. So the hemlock seed is important to some birds in the winter.

All the sound witch-hazel nuts that I examine are empty.

How vain to try to teach youth, or anybody, truths! They can only learn them after their own fashion, and when they get ready. I do not mean by this to condemn our system of education, but to show what it amounts to. A hundred boys at college are drilled in physics and metaphysics, languages, etc. There *may* be one or two in each hundred, prematurely old perchance, who approaches the subject from a similar point of view to his teachers, but as for the rest, and the most promising, it is like agricultural chemistry to so many Indians. They get a valuable drilling, it *may* be, but they do not learn what you profess to teach. They at most only learn where the arsenal is, in case they should ever want to use any of its weapons. The young men, being young, necessarily listen to the lecturer in history, just as they do to the singing of a bird.

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They expect to be affected by something he may say. It is a kind of poetic pabulum and imagery that they get. Nothing comes quite amiss to their mill.

I think it will be found that he who speaks with most authority on a given subject is not ignorant of what has been said by his predecessors. He will take his place in a regular order, and substantially add his own knowledge to the knowledge of previous generations.

The oblong-conical sterile flower-buds or catkins of the sweet-gale, half a dozen at the end of each black twig, dark-red, oblong-conical, spotted with black, and about half an inch long, are among the most interesting buds of the winter. The leaf-buds are comparatively minute. The white edges of their scales and their regular red and black colors make the imbrication of the bud very distinct. The sterile and fertile flowers are not only on distinct plants, but they commonly grow in distinct patches. Sometimes I detect the one only for a quarter of a mile, and then the other begins to prevail, or both may be found together. It grows along the wet edge of banks and the river and in open swamps.

The mulleins are full of minute brown seeds, which a jar sprinkles over the snow, and [they] look black there; also the primrose, of larger brown seeds, which rattle out in the same manner.

One of the two large docks, perhaps *obtusifolius*, commonly holds its seeds now, but they are very ready to fall. (Mainly one-seeded; *vide* three-ribbed goldenrod meadow.)

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There appears to be not much (compared with the fall) seed left on the common or gray goldenrod, its down being mostly gone, and the seed is attached to that.

Potentilla Norvegica appears to have some sound seed in its closed heads.

The very gray flattish heads of the calamint are quite full of minute dark-brown seed.

The conical heads of the cone-flower also are full of long blackish seeds. Both the last drop their seeds on being inverted and shaken.

I see also the yellow lily (*L. Canadense*) pods with its three now gray divisions spreading open like the petals of a flower, and more than half the great red flattish triangularish or semicircularish seeds gone. The pod boys throw with a humming sound.

Even the sidesaddle-flower, where it shows its head above the snow, now gray and leathery, dry, is covered beneath its cap with pretty large close-set light-brown seeds.

I see one or more sedges with seeds yet, one apparently the *Carex debilis*, if it is not *flava?*

A man may be old and infirm. What, then, are the thoughts he thinks? what the life he lives? They and it are, like himself, infirm. But a man may be young, athletic, active, beautiful. Then, too, his thoughts will be like his person. They will wander in a living and beautiful world. If you are well, then how brave you are! How you hope! You are conversant with joy! A man thinks as well through his legs and arms as his brain. We exaggerate the importance and ex-

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clusiveness of the headquarters. Do you suppose they were a race of consumptives and dyspeptics who invented Grecian mythology and poetry? The poet's words are, "You would almost say the body thought!" I quite say it. I trust we have a good body then.

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II

JANUARY, 1860

(ÆT. 42)

Jan. 2. 8 A. M. — 15° below.

Take the whole day, this is probably the coldest thus far.

The past December has been remarkable for steady cold, or coldness, and sleighing.

Jan. 3. P. M. — To Baker's Bridge *via* Walden.

As we passed the almshouse brook this pleasant winter afternoon, at 2.30 P. M. (perhaps 20°, for it was 10° when I got home at 4.45), I saw vapor curling along over the open part by the roadside.

The most we saw, on the pond and after, was a peculiar track amid the men and dog tracks, which we took to be a fox-track, for he trailed his feet, leaving a mark, in a peculiar manner, and showed his wildness by his turning off the road.

Saw four snow buntings by the railroad causeway, just this side the cut, quite tame. They arose and alighted on the rail fence as we went by. Very stout for their length. Look very pretty when they fly and reveal the clear white space on their wings next the body, — white between the blacks. They were busily eating the seed of the piper grass on the embankment there, and it was strewn over the snow by them like

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oats in a stable. Melvin speaks of seeing flocks of them on the river meadows in the fall, when they are of a different color.

Melvin thinks that the musquash eat more clams now than ever, and that they leave the shells in heaps under the ice. As the river falls it leaves them space enough under the ice along the meadow's edge and bushes. I think he is right. He speaks of the mark of the tail, which is dragged behind them, in the snow, — as if made by a case-knife.

He does not remember that he ever sees the small hawk, *i. e.* pigeon hawk, here in winter. He shot a large hawk the other day, when after quails. Had just shot a quail, when he heard another utter a peculiar note which indicated that it was pursued, and saw it dodge into a wall, when the hawk alighted on an apple tree. Quails are very rare here, but where they are is found the hunter of them, whether he be man or hawk.

When a locomotive came in, just before the sun set, I saw a small cloud blown away from it which was a very rare but distinct violet purple.

I hear that one clearing out a well lately, perhaps in Connecticut, found one hundred and seventy and odd frogs and some snakes in it.

Jan. 4. P. M. — To second stone bridge and down river.

It is frozen directly under the stone bridge, but a few feet below the bridge it is open for four rods, and over that exceedingly deep hole, and again at that very swift and shallow narrow place some dozen rods lower.

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These are the only places open between this bridge and the mouth of the Assabet, except here and there a crack or space a foot wide at the springy bank just below the Pokelogan.

It is remarkable that the deepest place in either of the rivers that I have sounded should be open, simply on account of the great agitation of the water there. This proves that it is the swiftness and not warmth that makes the shallow places to be open longest.

In Hosmer's pitch pine wood just north of the bridge, I find myself on the track of a fox — as I take it — that has run about a great deal. Next I come to the tracks of rabbits, see where they have travelled back and forth, making a well-trodden path in the snow; and soon after I see where one has been killed and apparently devoured. There are to be seen only the tracks of what I take to be the fox. The snow is much trampled, or rather flattened by the body of the rabbit. It is somewhat bloody and is covered with flocks of slate-colored and brown fur, but only the rabbit's tail, a little ball of fur, an inch and a half long and about as wide, white beneath, and the contents of its paunch or of its entrails are left, — nothing more. Half a dozen rods further, I see where the rabbit has been dropped on the snow again, and some fur is left, and there are the tracks of the fox to the spot and about it. There, or within a rod or two, I notice a considerable furrow in the snow, three or four inches wide and some two rods long, as if one had drawn a stick along, but there is no other mark or track whatever; so I conclude that a partridge, perhaps scared by the fox,

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had dashed swiftly along so low as to plow the snow. But two or three rods further on one side I see more sign, and lo! there is the remainder of the rabbit, — the whole, indeed, but the tail and the inward or soft parts, — all frozen stiff; but here there is no distinct track of any creature, only a few scratches and marks where some great bird of prey — a hawk or owl — has struck the snow with its primaries on each side, and one or two holes where it has stood. Now I understand how that long furrow was made, the bird with the rabbit in its talons flying low there, and now I remember that at the first bloody spot I saw some of these quill-marks; and therefore it is certain that the bird had it there, and probably he killed it, and he, perhaps disturbed by the fox, carried it to the second place, and it is certain that he (probably disturbed by the fox again) carried it to the last place, making a furrow on the way.

If it had not been for the snow on the ground I probably should not have noticed any signs that a rabbit had been killed. Or, if I had chanced to see the scattered fur, I should not have known what creature did it, or how recently. But now it is partly certain, partly probable, — or, supposing that the bird could not have taken it from the fox, it is almost all certain, — that an owl or hawk killed a rabbit here last night (the fox-tracks are so fresh), and, when eating it on the snow, was disturbed by a fox, and so flew off with it half a dozen rods, but, being disturbed again by the fox, it flew with it again about as much further, trailing it in the snow for a couple of rods as it flew, and there

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it finished its meal without being approached. A fox would probably have torn and eaten some of the skin.

When I turned off from the road my expectation was to see some tracks of wild animals in the snow, and, before going a dozen rods, I crossed the track of what I had no doubt was a fox, made apparently the last night, — which had travelled extensively in this pitch pine wood, searching for game. Then I came to rabbit-tracks, and saw where they had travelled back and forth in the snow in the woods, making a perfectly trodden path, and within a rod of that was a hollow in the snow a foot and a half across, where a rabbit had been killed. There were many tracks of the fox about that place, and I had no doubt then that he had killed that rabbit, and I supposed that some scratches which I saw might have been made by his frisking some part of the rabbit back and forth, shaking it in his mouth. I thought, Perhaps he has carried off to his young, or buried, the rest. But as it turned out, though the circumstantial evidence against the fox was very strong, I was mistaken. I had made him kill the rabbit, and shake and tear the carcass, and eat it all up but the tail (almost); but it seems that he did n't do it at [all], and apparently never got a mouthful of the rabbit. Something, surely, must have disturbed the bird, else why did it twice fly along with the heavy carcass?

The tracks of the bird at the last place were two little round holes side by side, the dry snow having fallen in and concealed the track of its feet.

It was most likely an owl, because it was most likely that the fox would be abroad by night.

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The sweet-gale has a few leaves on it yet in some places, partly concealing the pretty catkins.

Again see what the snow reveals. Opposite Dodge's Brook I see on the snow and ice some fragments of frozen-thawed apples under an oak. How came they there? There are apple trees thirty rods off by the road. On the snow under the oak I see two or three tracks of a crow, and the droppings of several that were perched on the tree, and here and there is a perfectly round hole in the snow under the tree. I put down my hand and draw up an apple [out] of each, from beneath the snow. (There are no tracks of squirrels about the oak.) Crows carried these frozen-thawed apples from the apple trees to the oak, and there ate them, — what they did not let fall into the snow or on to the ice.

See that long meandering track where a deer mouse hopped over the soft snow last night, scarcely making any impression. What if you could witness with owls' eyes the revelry of the wood mice some night, frisking about the wood like so many little kangaroos? Here is a palpable evidence that the woods are nightly thronged with little creatures which most have never seen, — such populousness as commonly only the imagination dreams of.

The circumstantial evidence against that fox was very strong, for the deed was done since the snow fell and I saw no other tracks but his at the first places. Any jury would have convicted him, and he would have been hung, if he could have been caught.

Jan. 5. P. M. — *Via* Turnpike to Smith's and back by Great Road.

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How much the snow reveals! I see where the downy woodpecker has worked lately by the chips of bark and rotten wood scattered over the snow, though I rarely see him in the winter. Once to-day, however, I hear his sharp voice, even like a woodchuck's. Also I have occasionally seen where (probably) a flock of goldfinches in the morning had settled on a hemlock's top, by the snow strewn with scales, literally blackened or darkened with them for a rod. And now, about the hill in front of Smith's, I see where the quails have run along the roadside, and can count the number of the bevy better than if I saw them. Are they not peculiar in this, as compared with partridges, — that they run in company, while at this season I see but [one] or two partridges together?

A man receives only what he is ready to receive, whether physically or intellectually or morally, as animals conceive at certain seasons their kind only. We hear and apprehend only what we already half know. If there is something which does not concern me, which is out of my line, which by experience or by genius my attention is not drawn to, however novel and remarkable it may be, if it is spoken, we hear it not, if it is written, we read it not, or if we read it, it does not detain us. Every man thus *tracks himself* through life, in all his hearing and reading and observation and travelling. His observations make a chain. The phenomenon or fact that cannot in any wise be linked with the rest which he has observed, he does not observe. By and by we may be ready to receive what we cannot receive now. I find, for example, in Aristotle some-

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thing about the spawning, etc., of the pout and perch, because I know something about it already and have my attention aroused; but I do not discover till very late that he has made other equally important observations on the spawning of other fishes, because I am not interested in those fishes.

I see the dead stems of the water horehound just rising above the snow and curving outward over the bank of the Assabet, near the stone-heaps, with its brown clusters of dry seeds, etc., every inch or two. These, stripped off or rubbed between the fingers, look somewhat like ground coffee and are agreeably aromatic. They have the fragrance of lemon-peel.

Jan. 7. A thaw begins, with a southerly wind. From having been about 20° at midday, it is now (the thermometer) some 35° quite early, and at 2 P. M. 45°. At once the snow, which was dry and crumbling, is softened all over the country, not only in the streets, but in the remotest and slightest sled-track, where the farmer is hauling his wood; not only in yards, but in every woodland hollow and on every hill. There is a softening in the air and a softening underfoot. The softness of the air is something tangible, almost gross. Some are making haste to get their wood home before the snow goes, sledding, *i. e.* sliding, it home rapidly. Now if you take up a handful, it holds together and is readily fashioned and compressed into a ball, so that an endless supply of one kind of missiles is at hand.

I find myself drawn toward this softened snow, even that which is stained with dung in the road, as

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to a friend. I see where some crow has pecked at the now thawing dung here. How provident is Nature, who permits a few kernels of grain to pass undigested through the entrails of the ox, for the food of the crow and dove, etc.!

As soon as I reach the neighborhood of the woods I begin to see the snow-fleas, more than a dozen rods from woods, amid a little goldenrod, etc., where, methinks, they must have come up through the snow. Last night there was not one to be seen. The frozen apples are thawed again.

You hear (in the house) the unusual sound of the eaves running.

Saw a large flock of goldfinches [1] running and feeding amid the weeds in a pasture, just like tree sparrows. Then flitted to birch trees, whose seeds probably they eat.[2] Heard their twitter and mew.

Nature so fills the soil with seeds that I notice, where travellers have turned off the road and made a new track for several rods, the intermediate narrow space is soon clothed with a little grove which just fills it.

See, at White Pond, where squirrels have been feeding on the fruit of a pignut hickory, which was quite full of nuts and still has many on it. The snow for a great space is covered with the outer shells, etc.; and, especially, close to the base of this and the neighboring trees of other species, where there is a little bare ground, there is a very large collection of the shells, most of which have been gnawed quite in two.

[1] These *were* goldfinches [see p. 82].

[2] So it is possible that they *also* eat hemlock seed.

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The white pine cones show still as much as ever, hanging sickle-wise about the tops of the trees.

I saw yesterday the track of a fox, and in the course of it a place where he had apparently pawed to the ground, eight or ten inches, and on the just visible ground lay frozen a stale-looking mouse, probably rejected by him. A little further was a similar hole with some fur in it. Did he smell the dead or living mouse beneath and paw to it, or rather, catching it on the surface, make that hollow in his efforts to eat it? It would be remarkable if a fox could smell and catch a mouse passing under the snow beneath him! You would say that he need not make such a hole in order to eat the mouse.

Jan. 8. Began to rain last evening, and rained some in the night. To-day it is very warm and pleasant.

2 P. M. — Walk to Walden.

Thermometer 48 at 2 P. M. We are suddenly surrounded by a warm air from some other part of the globe. What a change! Yesterday morning we walked on dry and squeaking snow, but before night, without any rain, merely by the influence of that warm air which had migrated to us, softening and melting the snow, we began to slump in it. Now, since the rain of last night, the softest portions of the snow are dissolved in the street, revealing and leaving the filth which has accumulated there upon the firmer foundation, and we walk with open coats, charmed with the trickling of ephemeral rills.

After December all weather that is not wintry is

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springlike. How changed are our feelings and thoughts by this more genial sky!

When I get to the railroad I listen from time to time to hear some sound out of the distance which will express this mood of Nature. The cock and the hen, that pheasant which we have domesticated, are perhaps the most sensitive to atmospheric changes of any domestic animals. You cannot listen a moment such a day as this but you will hear, from far or near, the clarion of the cock celebrating this new season, yielding to the influence of the south wind, or the drawling note of the hen dreaming of eggs that are to be. These are the sounds that fill the air, and no hum of insects. They are affected like voyagers on approaching the land. We discover a new world every time that we see the earth again after it has been covered for a season with snow.

I see the jay and hear his scream oftener for the thaw.

Walden, which was covered with snow, is now covered with shallow puddles and slosh of a pale glaucous slate-color. The sloshy edges of the puddles are the frames of so many wave-shaped mirrors in which the leather-colored oak leaves, and the dark-green pines and their stems, on the hillside, are reflected.

We see no fresh tracks. The old tracks of the rabbit, now after the thaw, are shaped exactly like a horseshoe, an unbroken curve. Those of the fox which has run along the side of the pond are now so many white snowballs, raised as much above the level of the water-darkened snow as at first they sank beneath it. The snow, having been compressed by their weight, resists

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the melting longer. Indeed, I see far across the pond, half a mile distant, what looks like a perfectly straight row of white stones, — some fence or other work of art, — stretching twenty rods along the bare shore. There are a man's tracks, perhaps my own, along the pond-side there, looking not only larger than reality, but more elevated owing to the looming, and are referred to the dark background against which they are seen. When I know that they are on the ice, they look like white stepping-stones.

I hear the goldfinch notes (they *may* be linarias), and see a few on the top of a small black birch by the pond-shore, of course eating the seed. Thus they distinguish its fruit from afar. When I heard their note, I looked to find them on a birch, and lo, it was a black birch! [1]

We have a fine moonlight evening after, and as by day I have noticed that the sunlight reflected from this moist snow had more glitter and dazzle to it than when the snow was dry, so now I am struck by the brighter sheen from the snow in the moonlight. All the impurities in the road are lost sight of, and the melting snow shines like frostwork.

When returning from Walden at sunset, the only cloud we saw was a small purplish one, exactly conforming to the outline of Wachusett, — which it concealed, — as if on that mountain only the universal moisture was at that moment condensed.

The commonest difference between a public speaker who has not enjoyed the advantage of the highest

[1] Were they not linarias? *Vide* Jan. 24, 27, 29.

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education in the popular sense, at school and college, and one who has, is that the former will pronounce a few words, and use a few more, in a manner in which the scholars have agreed not to, and the latter will occasionally quote a few Latin and even Greek words with more confidence, and, if the subject is the derivation of words, will maintain a wise silence.

Jan. 9. Another fine warm day, — 48° at 2 P. M.

P. M. — To Walden.

I call that ice marbled when shallow puddles of melted snow and rain, with perhaps some slosh in them, resting on old ice, are frozen, showing a slightly internal marbling, or alternation of light and dark spots or streaks.

I see, on a slender oak (not white oak) overhanging the pond, two knots which, though near, I at first mistook for vireo nests. One was in a fork, too, and both were just the right size and color, if not form. Thus, too, the nests may be concealed to some eyes.

I am interested by a clump of young canoe birches on the hillside shore of the pond. There is an interesting variety in the colors of their bark, passing from bronze at the earth, through ruddy and copper colors to white higher up, with shreds of different color from that beneath peeling off. Going close to them, I find that at first, or till ten feet high, they are a dark bronze brown, a wholly different-looking shrub from what they afterward become, with some ruddy tinges, and, of course, regular white specks; but when they get to be about two inches in diameter, the outmost

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cuticle bursts up and down the tree on the south side, and peels off each way, under the influence, probably, of the sun and rain and wind, and perhaps aided sometimes by birds. It is as if the tree unbuttoned a thin waistcoat and suffered it to blow aside, revealing its bosom or inner garment, which is a more ruddy brown, or sometimes greenish or coppery; and thus one cuticle peels off after another till it is a ruddy white, as if you saw to a red ground through a white wash; and at length it is snow-white, about five or six feet from the ground, for it is first white there, while the top, where it is smaller and younger, is still dark-brown. It may be, then, half a dozen years old before it assumes the white toga which is its distinctive dress.

After the January thaw our thoughts cease to refer to autumn and we look forward to spring.

I hear that R. M——, a rich old farmer who lives in a large house, with a male housekeeper and no other family, gets up at three or four o'clock these winter mornings and milks seventeen cows regularly. When asked why he works so hard he answers that the poor are obliged to work hard. Only think, what a creature of fate he is, this old Jotun, milking his seventeen cows though the thermometer goes down to $-25°$, and not knowing why he does it, — draining sixty-eight cows' teats in the dark of the coldest morning! Think how helpless a rich man who can only do as he has done, and as his neighbors do, one or all of them! What an account he will have to give of himself! He spent some time in a world, alternately cold and warm, and every winter morning, with lantern in hand, when the frost

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goblins were playing their tricks, he resolutely accomplished his task and milked his seventeen cows, while the man housekeeper prepared his breakfast! If this were original with him, he would be a hero to be celebrated in history. Think how tenaciously every man does his deed, of some kind or other, though it be idleness! He is rich, dependent on nobody, and nobody is dependent on him; has as good health as the average, at least, can do as he pleases, as we say. Yet he gravely rises every morning by candle-light, dons his cowhide boots and his frock, takes his lantern and wends to the barn and milks his seventeen cows, milking with one hand while he warms the other against the cow or his person. This is but the beginning of his day, and his Augean stable work. So serious is the life he lives.

Jan. 12. The very slight rain of yesterday afternoon turned to snow in the night, and this morning considerable has fallen and is still falling. At noon it clears up. About eight inches deep.

I go forth to walk on the Hill at 3 P. M. Thermometer about 30°.

It is a very beautiful and spotless snow now, it having just ceased falling. You are struck by its peculiar tracklessness, as if it were a thick white blanket just spread. As it were, each snowflake lies as it first fell, or there is a regular gradation from the denser bottom up to the surface, which is perfectly light, and as it were fringed with the last flakes that fell. This was a star snow, dry, but the stars of considerable size. It lies up light as down. When I look closely it seems to

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be chiefly composed of crystals in which the six rays or leafets are more or less perfect, with a cottony powder intermixed. It is not yet in the least melted by the sun. The sun is out very bright and pretty warm, and, going from the sun, I see a myriad sparkling points scattered over its surface, — little mirror-like facets, which on examination I find to be one of those star wheels (more or less entire) from an eighth to a third of an inch in diameter, which has fallen in the proper position, reflecting an intensely bright little sun, as if it were a thin and uninterrupted scale of mica. Such is the glitter or sparkle on the surface of such a snow freshly fallen when the sun comes out and you walk from it, the points of light constantly changing. I suspect that these are good evidence of the freshness of the snow. The sun and wind have not yet destroyed these delicate reflectors.

The aspect of the pines now, with their plumes and boughs bent under their burden of snow, is what I call *glyphic*, like lumpish forms of sculpture, — a certain dumb sculpture.

There is a wonderful stillness in the air, so that you hear the least fall of snow from a bough near you, suggesting that perhaps it was of late equally still in what you called the snow-*storm*, except for the motion of the falling flakes and their rustling on the dry leaves, etc.

Looking from the hilltop, the pine woods half a mile or a mile distant north and northwest, their sides and brows especially, snowed up like the fronts of houses, look like great gray or grayish-white lichens, cetrarias maybe, attached to the sides of the hills. Those oak

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woods whose leaves have fallen have caught the snow chiefly on their lower and more horizontal branches, and these look somewhat like ramalina lichens.

As I stand by the hemlocks, I am greeted by the lively and unusually prolonged *tche de de de de de* of a little flock of chickadees. The snow has ceased falling, the sun comes out, and it is warm and still, and this flock of chickadees, little birds that perchance were born in their midst, feeling the influences of this genial season, have begun to flit amid the snow-covered fans of the hemlocks, jarring down the snow, — for there are hardly bare twigs enough for them to rest on, — or they plume themselves in some snug recess on the sunny side of the tree, only pausing to utter their *tche de de de.*

The locust pods, which were abundant, are still, part of them, unopened on the trees.

I notice, as I am returning half an hour before sunset, the thermometer about 24°, much vapor rising from the thin ice which has formed over the snow and water to-day by the riverside. Here, then, I actually see the vapor rising *through* the ice.

Jan. 13. Tuttle was saying to-day that he did remember a certain man's living with him once, from something that occurred. It was this: The man was about starting for Boston market for Tuttle, and Mrs. Tuttle had been telling him what to get for her. The man inquired if that was all, and Mrs. Tuttle said no, she wanted some nutmegs. "How many," he asked. Tuttle, coming along just then, said, "Get a bushel."

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When the man came home he said that he had had a good deal of trouble about the nutmegs. He could not find so many as were wanted, and, besides, they told him that they did not sell them by the bushel. But he said that he would take a bushel by the weight. Finally he made out to get a peck of them, which he brought home. It chanced that nutmegs were very high just then, so Tuttle, after selecting a few for his own use, brought the remainder up to town and succeeded in disposing of them at the stores for just what he gave for them.

One man at the post-office said that a crow would drive a fox. He had seen three crows pursue a fox that was crossing the Great Meadows, and he fairly ran from [them] and took refuge in the woods.

Farmer says that he remembers his father's saying that as he stood in a field once, he saw a hawk soaring above and eying something on the ground. Looking round, he saw a weasel there eying the hawk. Just then the hawk stooped, and the weasel at the same instant sprang upon him, and up went the hawk with the weasel; but by and by the hawk began to come down as fast as he went up, rolling over and over, till he struck the ground. His father, going up, raised him up, when out hopped the weasel from under his wing and ran off none the worse for his fall.

The surface of the snow, now that the sun has shone on it so long, is not so light and downy, almost impalpable, as it was yesterday, but is somewhat flattened down and looks even as if [it] had had a skim-coat of some whitewash. I can see sparkles on it, but they are finer than at first and therefore less dazzling.

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The thin ice of the Mill Brook sides at the Turnpike bridge is sprinkled over with large crystals which look like asbestos or a coarse grain. This is no doubt the vapor of last evening crystallized. I see vapor rising from and curling along the open brook and also rising from the end of a plank in the sun, which is wet with melted snow, though the thermometer was 16° only when I left the house.

I see in low grounds numerous heads of bidens, with their seeds still.

I see under some sizable white pines in E. Hubbard's wood, where red squirrels have run about much since this snow. They have run chiefly, perhaps, under the surface of the snow, so that it is very much undermined by their paths under these trees, and every now and then they have come to the surface, or the surface has fallen into their gallery. They seem to burrow under the snow about as readily as a meadow mouse. There are also paths raying out on every side from the base of the trees. And you see many holes through the snow into the ground where they now are, and other holes where they have probed for cones and nuts. The scales of the white pine cones are scattered about here and there. They seek a dry place to open them, — a fallen limb that rises above the snow, or often a lower dead stub projecting from the trunk of the tree.

Jan. 14. About an inch more snow fell this morning. An average snow-storm is from six to eight inches deep on a level.

The snow having ceased falling this forenoon, I go

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to Holden Wood, Conantum, to look for tracks. It is too soon. I see none at all but those of a hound, and also where a partridge waded through the light snow, apparently while it was falling, making a deep gutter.

Yesterday there was a broad field of bare ice on each side of the river, *i. e.* on the meadows, and now, though it is covered with snow an inch deep, as I stand on the river or even on Fair Haven Hill a quarter to half a mile off, I can see where the ice is through the snow, *plainly*, trace its whole outline, it being quite dark compared with where the snow has fallen on snow. In this case a mantle of light snow even an inch thick is not sufficient to conceal the darkness of the ice beneath it, where it is contrasted with snow on snow.

Those little groves of sweet-fern still thickly leaved, whose tops now rise above the snow, are an interesting warm brown-red now, like the reddest oak leaves. Even this is an agreeable sight to the walker over snowy fields and hillsides. It has a wild and jagged leaf, alternately serrated. A warm reddish color revealed by the snow.

It is a mild day, and I notice, what I have not observed for some time, that blueness of the air only to be perceived in a mild day. I see it between me and woods half a mile distant. The softening of the air amounts to this. The mountains are quite invisible. You come forth to see this great blue presence lurking about the woods and the horizon.

Jan. 16. P. M. — Down Boston road around Quail Hill.

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Very warm, — 45° at 2 P. M.

There is a tender crust on the snow, and the sun is brightly reflected from it. Looking toward Billerica from the cross-road near White's, the young oaks on the top of a hill in the horizon are very red, perhaps seven or eight miles off and directly opposite to the sun, far more red, no doubt, than they would appear near at hand, really bright red; but nowhere else that I perceive. It is an aerial effect, depending on their distance and elevation and being opposite to the sun, and also contrasted with the snowy ground.

Looking from Smith's Hill on the Turnpike, the hills eight or ten miles west are white, but the mountains thirty miles off are blue, though both may be equally white at the same distance.

I see a flock of tree sparrows busily picking something from the surface of the snow amid some bushes. I watch one attentively, and find that it is feeding on the very fine brown chaffy-looking seed of the panicled andromeda. It understands how to get its dinner, to make the plant *give down*, perfectly. It flies up and alights on one of the dense brown panicles of the hard berries, and gives it a vigorous shaking and beating with its claws and bill, sending down a shower of the fine chaffy-looking seed on to the snow beneath. It lies very distinct, though fine almost as dust, on the spotless snow. It then hops down and briskly picks up from the snow what it wants. How very clean and agreeable to the imagination, and withal abundant, is this kind of food! How delicately they fare! These dry persistent seed-vessels hold their crusts of bread

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until shaken. The snow is the white table-cloth on which they fall. No anchorite with his water and his crust fares more simply. It shakes down a hundred times as much as it wants at each shrub, and shakes the same or another cluster after each successive snow. How bountifully Nature feeds them! No wonder they come to spend the winter with us, and are at ease with regard to their food. These shrubs ripen an abundant crop of seeds to supply the wants of these immigrants from the far north which annually come to spend the winter with us. How neatly and simply it feeds!

This shrub grows unobserved by most, only known to botanists, and at length matures its hard, dry seed-vessels, which, if noticed, are hardly supposed to contain seed. But there is no shrub nor weed which is not known to some bird. Though you may have never noticed it, the tree sparrow comes from the north in the winter straight to this shrub, and confidently shakes its panicle, and then feasts on the fine shower of seeds that falls from it.

Jan. 17. Another mild day.

P. M. — To Goose Pond and Walden.

Sky overcast, but a crescent of clearer in the northwest. I see on the snow in Hubbard's Close one of those rather large flattish black bugs some five eighths of an inch long, with feelers and a sort of shield at the forward part with an orange mark on each side of it. In the spring-hole ditches of the Close I see many little water-bugs (*Gyrinus*) gyrating, and some under

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water. It must be a common phenomenon there in mild weather in the winter.

I look again at that place of squirrels (of the 13th). As I approach, I have a glimpse of one or two red squirrels gliding off silently along the branches of the pines, etc. They are gone so quickly and noiselessly, perhaps keeping the trunk of the tree between you and them, that [you] would not commonly suspect their presence if you were not looking for them. But one that was on the snow ascended a pine and sat on a bough with its back to the trunk as if there was nothing to pay. Yet when I moved again he scud up the tree, and glided across on some very slender twigs into a neighboring tree, and so I lost him. Here is, apparently, a settlement of these red squirrels. There are many holes through the snow into the ground, and many more where they have probed and dug up a white pine cone, now pretty black and, for aught I can see, with abortive or empty seeds; yet they patiently strip them on the spot, or at the base of the trees, or at the entrance of their holes, and evidently find some good seed. The snow, however, is strewn with the empty and rejected seeds. They seem to select for their own abode a hillside where there are half a dozen rather large and thick white pines near enough together for their aerial travelling, and then they burrow numerous holes and depend on finding (apparently) the pine cones which they cast down in the summer, before they have opened. In the fall they construct a nest of grass and bark-fibres, moss, etc., in one of the trees for winter use, and so apparently have two resources.

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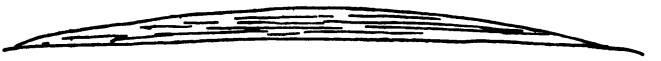
I walk about Ripple Lake and Goose Pond. I see the old tracks of some foxes and rabbits about the edge of these ponds (over the ice) within a few feet of the shore. I think that I have noticed that animals thus commonly go round by the shore of a pond, whether for fear of the ice, or for the shelter of the shore, *i. e.* not to be seen, or because their food and game is found there. But a dog will oftener bolt straight across.

When I reached the open railroad causeway returning, there was a splendid sunset. The northwest sky at first was what you may call a lattice sky, the fair weather establishing itself first on that side in the form of a long and narrow crescent, in which the clouds, which were uninterrupted overhead, were broken into long bars parallel to the horizon, thus: —



Alcott said well the other day that this was his definition of heaven, "A place where you can have a little conversation."

Jan. 18. 2 P. M. — To Fair Haven Pond, on river. Thermometer 46; sky mostly overcast.

The temperature of the air and the clearness or serenity of the sky are indispensable to a knowledge of a day, so entirely do we sympathize with the moods of nature. It is important to know of a day that is past whether it was warm or cold, clear or cloudy, calm or windy, etc.

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They are very different seasons in the winter when the ice of the river and meadows and ponds is bare, — blue or green, a vast glittering crystal, — and when it is all covered with snow or slosh; and our moods correspond. The former may be called a crystalline winter.

Standing under Lee's Cliff, several chickadees, uttering their faint notes, come flitting near to me as usual. They are busily prying under the bark of the pitch pines, occasionally knocking off a piece, while they cling with their claws on any side of the limb. Of course they are in search of animal food, but I see one suddenly dart down to a seedless pine seed wing on the snow, and then up again. C. says that he saw them busy about these wings on the snow the other [day], so I have no doubt that they eat this seed.

There is a springy place in the meadow near the Conantum elm.

The sky in the reflection at the open reach at Hubbard's Bath is more green than in reality, and also darker-blue, and the clouds are blacker and the purple more distinct.

Jan. 19. P. M. — Down river.

2 P. M. — Thermometer 38. Somewhat cloudy at first.

The open water at Barrett's Bar is very small compared with that at Hubbard's Bath yesterday, and I think it could not have frozen much last night.

It is evident mere shallowness is not enough to prevent freezing, for that shallowest space of all, in middle of river at Barrett's Bar, has been frozen ever since the

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winter began. It is the swifter though *deeper*, but not *deep*, channels on each side that remain open.

When I reached the lowest part of the Great Meadows, the neck of the Holt, I saw that the ice, thickly covered with snow, before me was of two shades, white and darker, as far as I could see in parallel sections. This was owing to fine snow blown low over the first — hence white — portion. I noticed it when I was returning toward the sun. This snow looks just like vapor curling along over the surface, — long waving lines producing the effect of a watered surface, very interesting to look at, when you face the sun, waving or curving about swellings in the ice like the grain of wood, the whole surface in motion, like a low, thin, but infinitely broad stream made up of a myriad meandering rills of vapor flowing over the surface. It *seemed* to rise a foot or two, yet when I laid my finger on the snow I did not perceive that any of the drifting snow rose above it or passed over it; it rather turned and went round it. It was the snow, probably the last light snow of the morning (when half an inch fell), blown by the strong northwest wind just risen, and apparently blown only where the surface beneath was smooth enough to let it slide. On such a surface it would evidently be blown a mile very quickly. Here the distance over which it was moving may have been half a mile. As you look down on it around you, you only see it moving straight forward in a thin sheet; but when you look at it several rods off in the sun, it has that waving or devious motion like vapor and flames, very agreeable and surprising.

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Jan. 20. 2 P. M. — 39°. Up Assabet.

The snow and ice under the hemlocks is strewn with cones and seeds and tracked with birds and squirrels. What a bountiful supply of winter food is here provided for them! No sooner has fresh snow fallen and covered up the old crop than down comes a new supply all the more distinct on the spotless snow. Here comes a little flock of chickadees, attracted by me as usual, and perching close by boldly; then, descending to the snow and ice, I see them pick up the hemlock seed which lies all around them. Occasionally they take one to a twig and hammer at it there under their claws, perhaps to separate it from the wing, or even the shell. The snowy ice and the snow on shore have been blackened with these fallen cones several times over this winter. The snow along the sides of the river is also all dusted over with birch and alder seed, and I see where little birds have picked up the alder seed.

At R. W. E.'s red oak I see a gray squirrel, which has been looking after acorns there, run across the river. The half-inch snow of yesterday morning shows its tracks plainly. They are much larger and more like a rabbit's than I expected.

The squirrel runs in an undulating manner, though it is a succession of low leaps of from two and a half to three feet. Each four tracks occupy a space some six

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or seven inches long. Each foot-track is very distinct, showing the toes and protuberances of the foot, and is from an inch and a half to an inch and three quarters long. The clear interval between the hind and fore feet is four to five inches. The fore feet are from one and a half to three inches apart in the clear; the hind, one to two inches apart. I see that what is probably the track of the same squirrel near by is sometimes in the horseshoe form, *i. e.*, when its feet are all brought close together: the open side still forward. I must have often mistaken this for a rabbit. But is not the bottom of the rabbit's foot so hairy that I should never see these distinct marks or protuberances?

This squirrel ran up a maple till he got to where the stem was but little bigger than his body, and then, getting behind the gray-barked stem, which was almost exactly the color of its body, it clasped it with its fore feet and there hung motionless with the end of its tail blowing in the wind. As I moved, it steadily edged round so as to keep the maples always between me and it, and I only saw its tail, the sides of its body projecting, and its little paws clasping the tree. It remained otherwise perfectly still as long as I was thereabouts, or five or ten minutes. There was a leafy nest in the tree.

Jan. 22. P. M. — Up river to Fair Haven Pond; return *via* Andromeda Ponds and railroad.

Overcast, but some clear sky in southwest horizon; mild weather still.

Where the sedge grows rankly and is uncut, as along the edge of the river and meadows, what fine coverts

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Sedges by the River

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are made for mice, etc., at this season! It is arched over, and the snow rests chiefly on its ends, while the middle part is elevated from six inches to a foot and forms a thick thatch, as it were, even when all is covered with snow, under which the mice and so forth can run freely, out of the way of the wind and of foxes. After a pretty deep snow has just partially melted, you are surprised to find, as you walk through such a meadow, how high and lightly the sedge lies up, as if there had been no pressure upon it. It grows, perhaps, in dense tufts or tussocks, and when it falls over, it forms a thickly thatched roof.

Nature provides shelter for her creatures in various ways. If the musquash, etc., has no longer extensive fields of weed and grass to crawl in, what an extensive range it has under the ice of the meadows and river-sides! for, the water settling directly after freezing, an icy roof of indefinite extent is thus provided for it, and it passes almost its whole winter under shelter, out of the wind and invisible to men.

The ice is so much rotted that I observe in many places those lunar-shaped holes, and dark places in the ice, convex up-stream, sometimes double-lunar.

I perceive that the open places in the river do not preserve the same relative importance that they had December 29th. Then the largest four or five stood in this order: (1) below boat's place, (2) below junction, (3) Barrett's Bar, (4) Clamshell or else Hubbard's Bath. Now it is (1) below junction, (2) Hubbard's Bath or else Clamshell. I do not know but Clamshell is as

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large as Hubbard's Bath. Which of the others is largest I am not quite sure. In other words, below junction and Hubbard's Bath (if not also Clamshell, not seen) retain about their former size, while below boat's place and Barrett's Bar have been diminished, especially below boat's place.

Birds are commonly very rare in the winter. They are much more common at some times than at others. I see more tree sparrows in the beginning of the winter (especially when snow is falling) than in the course of it. I think that by observation I could tell in what kind of weather afterward these were most to be seen. Crows come about houses and streets in very cold weather and deep snows, and they are heard cawing in pleasant, thawing winter weather, and their note is then a pulse by which you feel the quality of the air, *i. e.*, when cocks crow. For the most part, lesser redpolls and pine grosbeaks do not appear at all. Snow buntings are very wandering. They were quite numerous a month ago, and now seem to have quit the town. They seem to ramble about the country at will.

C. says that he followed the track of a fox all yesterday afternoon, though with some difficulty, and then lost it at twilight. I suggested that he should begin next day where he had left off, and that following it up thus for many days he might catch him at last. "By the way," I asked, "did you go the same way the fox did, or did you take the back track?" "Oh," said he, "I took the back track. It would be of no use to go the other way, you know."

Minott says that a hound which pursues a fox by

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scent cannot tell which way he is going; that the fox is very cunning and will often return on its track over which the dog had already run. It will ascend a high rock and then leap off very far to one side; so throw the dogs off the scent for a while and gain a breathing-spell.

I see, in one of those pieces of drifted meadow (of last spring) in A. Wheeler's cranberry meadow, a black willow thus transplanted more than ten feet high and five inches in diameter. It is quite alive.

The snow-fleas are thickest along the edge of the wood here, but I find that they extend quite across the river, though there are comparatively few over the middle. There are generally fewer and fewer the further you are from the shore. Nay, I find that they extend quite across Fair Haven Pond. There are two or three inches of snow on the ice, and thus they are revealed. There are a dozen or twenty to a square rod on the very middle of the pond. When I approach one, it commonly hops away, and if it gets a good spring it hops a foot or more, so that it is at first lost to me. Though they are scarcely the twentieth of an inch long they make these surprising bounds, or else conceal themselves by entering the snow. We have now had many days of this thawing weather, and I believe that these fleas have been gradually hopping further and further out from the shore. To-day, perchance, it is water, a day or two later ice, and no fleas are seen on it. Then snow comes and covers the ice, and if there is no thaw for a month, you see no fleas for so long. But, at least soon after a thaw, they are to be seen on the centre

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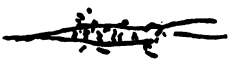
of ponds at least half a mile across. Though this is my opinion, it is by no means certain that they come here thus, for I am prepared to believe that the water in the middle may have had as many floating on it, and that these were afterward on the surface of the ice, though unseen, and hence under the snow when it fell, and ready to come up through it when the thaw came. But what do they find to eat in apparently pure snow so far from any land? Has their food come down from the sky with the snow? They must themselves be food for many creatures. This must be as peculiarly a winter animal as any. It may truly be said to live in snow.

I see some insects  of about this form on the snow:

I scare a partridge that was eating the buds and ends of twigs of the *Vaccinium vacillans* on a hillside.

At the west or nesæa end of the largest Andromeda Pond, I see that there has been much red ice, more than I ever saw, but now spoiled by the thaw and snow.

The leaves of the water andromeda are evidently more appressed to the twigs, and showing the gray under sides, than in summer.

Jan. 23. 8 A. M. — On river.

Walking on the ice by the side of the river this very pleasant morning, I see many minnows (may be dace) from one and a half to four inches long which have come out, through holes or cracks a foot wide more or less, where the current has worn through and shows

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the dark stream, and the water has flown over the adjacent ice, sinking it down so as to form a shallow water four or five feet wide or more, and often several rods long, and four or five inches deep on the side next the crack, or deepest side. This water has a yellowish color, and a fish or anything else in it is at once seen. I think that they come out into this thin water overlying the ice for the sake of the sun's warmth. Much heat must be reflected from the icy bottom this sunny morning, — a sort of anticipation of spring to them. This shallow surface water is also thinly frozen over, and I can sometimes put my hand close over the minnow. When alarmed they make haste back to the dark water of the crack, and seek the depths again.

Each pleasant morning like this all creatures recommence life with new resolutions, — even these minnows, methinks.

That snow which in the afternoons these days is thawing and dead — in which you slump — is now hard and crisp, supporting your weight, and has a myriad brilliant sparkles in the sunlight.

When a thaw comes, old tracks are enlarged in every direction, so that an ordinary man's track will look like the track of a snow-shoe, and a hound's track will sometimes have spread to a foot in diameter (when there is a thin snow on ice), with all the toes distinct, looking like the track of a behemoth or megalonyx.

Minott says that pigeons alight in great flocks on the tops of hemlocks in March, and he thinks they eat the seed. (But he also thought for the same reason

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that they ate the white pine seed at the same season, when it is not there! They might find a little of the last adhering to the pitch.)

Says he used to shoot the gray squirrel thus: he put his hat or coat upon a stick while the squirrel hung behind an upright limb, then, going round to the side, he shot him, for the squirrel avoided exposing himself to the coat as much as to the man.

He has stood on the steep hill southwest side of Moore's Swamp and seen two foxes chase a white rabbit all about it. The rabbit would dodge them in the thicket, and now and then utter a loud cry of distress. The foxes would burst out on the meadow and then dash into the thicket again. This was when the wood had been cut and he could see plainly. He says that the white rabbit loves to sit concealed under the over-arching cinnamon ferns (which he calls "buck-horns") on the sunny side of a swamp, or under a tuft of brakes which are partly fallen over. That a hound in its head-long course will frequently run over the fox, which quickly turns and gets off three or four rods before the former can stop himself.

For Spring and Blossoming *vide* Pliny, vol. ii, page 163.

Jan. 24. 2 P. M. — To Tarbell, river, *via* railroad.

Thermometer 46. Sky thinly overcast, growing thicker at last as if it would rain. Wind northwest.

See a large flock of lesser redpolls, eating the seeds of the birch (and perhaps alder [1]) in Dennis Swamp

[1] *Vide* the 29th.

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by railroad. They are distinct enough from the goldfinch, their note more shelly and general as they fly, and they are whiter, without the black wings, beside that some have the crimson head or head and breast. They alight on the birches, then swarm on the snow beneath, busily picking up the seed in the copse.

The Assabet is open above Derby's Bridge as far as I go or see, probably to the factory, and I know not how far below Derby's. It opens up here sooner than below the Assabet Bath to its mouth.

The blue vervain stands stiffly and abundant in one place, with much rather large brown seed in it. It is in good condition.

Scare a shrike from an apple tree. He flies low over the meadow, somewhat like a woodpecker, and alights near the top twig of another apple tree. See a hawk sail over meadow and woods; not a hen-hawk; possibly a marsh hawk. A grasshopper on the snow. The droppings of a skunk left on a rock, perhaps at the beginning of winter, were full of grasshoppers' legs.

As I stand at the south end of J. P. B.'s moraine, I watch six tree sparrows, which come from the wood and alight and feed on the ground, which is there bare. They are only two or three rods from me, and are incessantly picking and eating an abundance of the fine grass (short-cropped pasture grass) on that knoll, as a hen or goose does. I see the stubble an inch or two long in their bills, and how they stuff it down. Perhaps they select chiefly the green parts. So they vary their fare and there is no danger of their starving. These six hopped round for five minutes over a space a rod square

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before I put them to flight, and then I noticed, in a space only some four feet square in that rod, at least eighteen droppings (white at one end, the rest more slate-colored). So wonderfully active are they in their movements, both external and internal. They do not suffer for want of a good digestion, surely. No doubt they eat some earth or gravel too. So do partridges eat a great deal. These birds, though they have bright brown and buff backs, hop about amid the little inequalities of the pasture almost unnoticed, such is their color and so humble are they.

Solomon thus describes the return of Spring (Song of Solomon, ii, 10–12): —

"Rise up, my love, my fair one, and come away.

"For, lo, the winter is past, the rain is over and gone;

"The flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land."

Jan. 25. In keeping a journal of one's walks and thoughts it seems to be worth the while to record those phenomena which are most interesting to us at the time. Such is the weather. It makes a material difference whether it is foul or fair, affecting surely our mood and thoughts. Then there are various degrees and kinds of foulness and fairness. It may be cloudless, or there may be sailing clouds which threaten no storm, or it may be partially overcast. On the other hand it may rain, or snow, or hail, with various degrees of intensity. It may be a transient thunder-storm, or a shower, or a flurry of snow, or it may be a prolonged

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storm of rain or snow. Or the sky may be overcast or rain-threatening. So with regard to temperature. It may be warm or cold. Above 40° is warm for winter. One day, at 38 even, I walk dry and it is good sleighing; the next day it may have risen to 48, and the snow is rapidly changed to slosh. It may be calm or windy. The finest winter day is a cold but clear and glittering one. There is a remarkable life in the air then, and birds and other creatures appear to feel it, to be excited and invigorated by it. Also warm and melting days in winter are inspiring, though less characteristic.

I will call the weather fair, if it does not threaten rain or snow or hail; foul, if it rains or snows or hails, or is so overcast that we expect one or the other from hour to hour. To-day it is fair, though the sky is slightly overcast, but there are *sailing* clouds in the southwest.

The river is considerably broken up by the recent thaw and rain, but the Assabet much the most, probably because it is swifter and, owing to mills, more fluctuating.

When the river begins to break up, it becomes clouded like a mackerel sky, but in this case the blue portions are where the current, clearing away the ice beneath, begins to show dark. The current of the water, striking the ice, breaks it up at last into portions of the same form with those which the wind gives to vapor. First, all those open places which I measured lately much enlarge themselves each way.

Saw A. Hosmer approaching in his pung. He cal-

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culated so that we should meet just when he reached the bare planking of the causeway bridge, so that his horse might as it were stop of his own accord and no other excuse would be needed for a talk. He says that he has seen that little bird (evidently the shrike) with mice in its claws. Wonders what has got all the rabbits this winter. Last winter there were hundreds near his house; this winter he sees none.

Jan. 26. Fair, but overcast. Thermometer about 32°. Pretty good skating on the Great Meadows, slightly raised and smoothed by the thaw and also the rain of (I think) the 23d–24th.

Great revolutions of this sort take place before you are aware of it. Though you walk every day, you do not foresee the kind of walking you will have the next day. Skating, crusted snow, slosh, etc., are wont to take you by surprise.

P. M. — To Eleazer Davis's Hill, and made a fire on the ice, merely to see the flame and smell the smoke. We soon had a slender flame flashing upward some four feet, — so many parallel undulating tongues. The air above and about it was all in commotion, being heated so that we could not see the landscape distinctly or steadily through it. If only to see the *pearl* ashes and hear the brands sigh.

Jan. 27. 2 P. M. — Up river to Fair Haven Pond, and return by Walden.,

Half a dozen redpolls busily picking the seeds out of the larch cones behind Monroe's. They are pretty

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tame, and I stand near. They perch on the slender twigs which are beaded with cones, and swing and teeter there while they perseveringly peck at them, trying now this one, now that, and sometimes appearing to pick out and swallow them quite fast. I notice no redness or carmine at first, but when the top of one's head comes between me and the sun it unexpectedly glows.

Fair and hardly a cloud to be seen. Thermometer 28. (But it is overcast from the northwest before sunset.)

After the January thaw we have more or less of crusted snow, *i. e.* more consolidated and crispy. When the thermometer is not above 32 this snow for the most part bears, — if not too deep.

Now I see, as I am on the ice by Hubbard's meadow, some wisps of vapor in the west and southwest advancing. They are of a fine, white, thready grain, curved

like skates at the end. Have we not more finely divided clouds in winter than in summer? flame-shaped, asbestos-like? I doubt if the clouds show as fine a grain in warm weather. They are wrung dry now. They are not expanded but contracted, like spiculæ. What hieroglyphics in the winter sky!

Those wisps in the west advanced and increased like white flames with curving tongues, — like an aurora by

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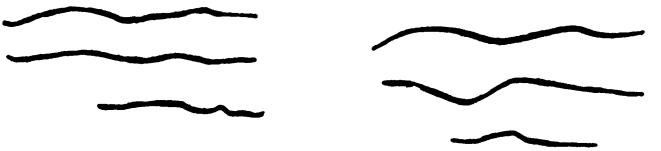
day. Now I see a few hard and distinct ripple-marks at right angles with them, or parallel with the horizon, the



lines indicating the ridges of the ripple-marks. These are like the abdominal plates of a snake. This occupies only a very small space in the sky. Looking right up overhead, I see some gauzy cloud-stuff there, so thin as to be grayish, — brain-like, finely reticulated; so thin yet so firmly drawn, membranous. These, methinks, are always seen overhead only. Now, underneath the flamy asbestos part, I detect an almost imperceptible rippling in a thin lower vapor, — an incipient mackerelling (in *form*). Now, nearly to the zenith, I see, not a mackerel sky, but blue and thin, blue-white, finely mixed, like fleece finely picked and even strewn over a blue ground. The white is in small roundish flocks. In a mackerel sky there is a parallelism of oblongish scales. This is so remote as to appear stationary, while a lower vapor is rapidly moving eastward.

Such clouds as the above are the very thin advance-guard of the cloud behind. It soon comes on more densely from the northwest, and darkens all.

No bright sunset to-night.

What fine and pure reds we see in the sunset sky! Yet earth is not ransacked for dye-stuffs. It is all accomplished by the sunlight on vapor at the right angle, and the sunset sky is constant if you are at the

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right angle. The sunset sky is sometimes more northerly, sometimes more southerly. I saw one the other day occupying only the south horizon, but very fine, and reaching more than half-way to the zenith from west to east. This may either be for want of clouds or from excess of them on certain sides.

As I go along the edge of Hubbard's Wood, on the ice, it is very warm in the sun — and calm there. There are certain spots I could name, by hill and wood sides, which are always thus sunny and warm in fair weather, and have been, for aught I know, since the world was made. What a distinction they enjoy!

How many memorable localities in a river walk! Here is the warm wood-side; next, the good fishing bay; and next, where the old settler was drowned when crossing on the ice a hundred years ago. It is all storied.

I occasionally hear a musquash plunge under the ice next the shore.

These winter days I occasionally hear the note of a goldfinch, or maybe a redpoll, unseen, passing high overhead.

When you think that your walk is profitless and a failure, and you can hardly persuade yourself not to return, it is on the point of being a success, for then you are in that subdued and knocking mood to which Nature never fails to open.

Jan. 29. Colder than before, and not a cloud in the sky to-day.

P. M. — To Fair Haven Pond and return *via* Andromeda Ponds and railroad.

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Half an inch or more of snow fell last night, the ground being half bare before. It was a snow of small flakes not star-shaped.

As usual, I now see, walking on the river and river-meadow ice, thus thinly covered with the fresh snow, that conical rainbow, or parabola of rainbow-colored reflections, from the myriad reflecting crystals of the snow, *i. e.*, as I walk toward the sun, —

always a little in advance of me, of course, angle of reflection being equal to that of incidence.

To-day I see quite a flock of the lesser redpolls eating the seeds of the alder, picking them out of the cones just as they do the larch, often head downward; and I see, under the alders, where they have run and picked up the fallen seeds, making chain-like tracks, two parallel lines.

Not only the Indian, but many wild birds and quadrupeds and insects, welcomed the apple tree to these shores. As it grew apace, the bluebird, robin, cherry-bird, kingbird, and many more came with a rush and built their nests in it, and so became orchard-birds.

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The woodpecker found such a savory morsel under its bark that he perforated it in a ring quite round the tree, a thing he had never done before. It did not take the partridge long to find out how sweet its buds were, and every winter day she flew and still flies from the wood to pluck them, much to the farmer's sorrow. The rabbit too was not slow to learn the taste of its twigs and bark. The owl crept into the first one that became hollow, and fairly hooted with delight, finding it just the place for him. He settled down into it, and has remained there ever since. The lackey caterpillar saddled her eggs on the very first twig that was formed, and it has since divided her affections with the wild cherry; and the canker-worm also in a measure abandoned the elm to feed on it. And when the fruit was ripe, the squirrel half carried, half rolled, it to his hole, and even the musquash crept up the bank and greedily devoured it; and when it was frozen and thawed, the crow and jay did not disdain to peck it.[1] And the beautiful wood duck, having made up her mind to stay a while longer with us, has concluded that there is no better place for her too.

Jan. 30. 2 P. M. — To Nut Meadow and White Pond road.

Thermometer 45°. Fair with a few cumuli of indefinite outline in the north and south, and dusky under sides. A gentle west wind and a blue haze. Thaws.

The river has opened to an unusual extent, owing to the very long warm spell, — almost all this month.

[1] [*Excursions*, pp. 293, 294; Riv. 360, 361.]

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Even from Hubbard's Bridge up and down it is breaking up, is all mackerelled, with lunar-shaped openings and some like a thick bow. They [are] from one to twelve feet long.

Yesterday's slight snow is all gone, leaving the ice, old snow, and bare ground; and as I walk up the riverside, there is a brilliant sheen from the wet ice toward the sun, instead of the crystalline rainbow of yesterday. Think of *that* (of yesterday), — to have constantly before you, receding as fast as you advance, a bow formed of a myriad crystalline mirrors on the surface of the snow!! What miracles, what beauty surrounds us! Then, another day, to do all your walking knee-deep in perfect six-rayed crystals of surpassing beauty but of ephemeral duration, which have fallen from the sky.

The ice has so melted on the meadows that I see where the musquash has left his clamshells in a heap near the riverside, where there was a hollow in the bank.

The small water-bugs are gyrating abundantly in Nut Meadow Brook. It is pleasant also to see the very distinct ripple-marks in the sand at its bottom, of late so rare a sight.

I go through the piny field northwest of M. Miles's. There are no more beautiful natural parks than these pastures in which the white pines have sprung up spontaneously, standing at handsome intervals, where the wind chanced to let the seed lie at last, and the grass and blackberry vines have not yet been killed by them.

There are certain sounds invariably heard in warm

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and thawing days in winter, such as the crowing of cocks, the cawing of crows, and sometimes the gobbling of turkeys. The crow, flying high, touches the tympanum of the sky for us, and reveals the tone of it. What does it avail to look at a thermometer or barometer compared with listening to his note? He informs me that Nature is in the tenderest mood possible, and I hear the very flutterings of her heart.

Crows have singular wild and suspicious ways. You will [see] a couple flying high, as if about their business, but lo, they turn and circle and caw over your head again and again for a mile; and this is their business, — as if a mile and an afternoon were nothing for them to throw away. This even in winter, when they have no nests to be anxious about. But it is affecting to hear them cawing about their ancient seat (as at F. Wheeler's wood) which the choppers are laying low.

I saw the other day (apparently) mouse(?)-tracks which had been made in slosh on the Andromeda Ponds and then frozen, — little gutters about two inches wide and nearly one deep, looking very artificial with the nicks on the sides.

I sit on the high hilltop south of Nut Meadow, near the pond. This hazy day even Nobscot is so blue that it looks like a mighty mountain. See how man has cleared commonly the most level ground, and left the woods to grow on the more uneven and rocky, or in the swamps. I see, when I look over our landscape from any eminence as far as the horizon, certain rounded hills, amid the plains and ridges and cliffs, which have

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a marked family likeness, like eggs that belong to one nest though scattered. They suggest a relation geologically. Such are, for instance, Nashoba, Annursnack, Nawshawtuct, and Ponkawtasset, all which have Indian names, as if the Indian, too, had regarded them as peculiarly distinct. There is also Round Hill in Sudbury, and perhaps a hill in Acton. Perhaps one in Chelmsford. They are not apparently rocky.

The snow-flea seems to be a creature whose summer and prime of life is a thaw in the winter. It seems not merely to enjoy this interval like other animals, but then chiefly to exist. It is the creature of the thaw. Moist snow is its element. That thaw which merely excites the cock to sound his clarion as it were calls to life the snow-flea.

Jan. 31. 2 P. M. — To Bedford Level.

Thermometer 45. Fair but all overcast. Sun's place quite visible. Wind southwest.

Went to what we called Two-Boulder Hill, behind the house where I was born. There the wind suddenly changed round 90° to northwest, and it became quite cold (had fallen to 24° or 24° [*sic*] at 5.30). Called a field on the east slope Crockery Field, there were so many bits in it. Saw a pitch pine on a rock about four feet high, but two limbs flat on the ground. This spread much and had more than a hundred cones of different ages on it. Such are always the most fertile.

Can look a great way northeast along the Bedford Swamp. Saw a large hawk, probably hen-hawk.

The ice that has been rotting and thawing from time

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to time on the meadows — the water run out from below — has many curious marks on it. There are many ingrained waving lines more or less parallel. Often they make circular figures, or oval, and are concentric, as if they marked the edge of a great bubble or the like.

I notice the ice on a ditched brook so far worn by the current as to be mackerelled in color, white and dark, all along the middle, making a figure two or three rods long which reminds me forcibly of the flat skin of a boa-constrictor, — marked just like it.

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III

FEBRUARY, 1860

(ÆT. 42)

Feb. 1. 2 P. M. — 5°. A cold day.

Two or three inches of dry snow last night.

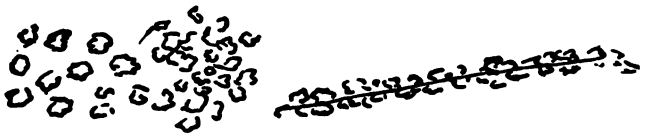
Grows colder apace toward night. Frost forms on windows.

Feb. 2. 6° below at about 8 A. M.

Clock has stopped. Teams squeak.

2 P. M. — To Fair Haven Pond.

The river, which was breaking up, is frozen over again. The new ice over the channel is of a yellow tinge, and is covered with handsome rosettes two or three inches in diameter where the vapor which rose through froze and crystallized. This new ice for forty rods together is thickly covered with these rosettes, often as thick as snow, an inch deep, and sometimes in ridges like frozen froth three inches high. Sometimes they are



in a straight line along a crack. The frozen breath of the river at a myriad breathing-holes.

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A thaw began the 7th of January, and it was mild and thawing most of the time for the rest of that month; but with February we have genuine winter again. Almost all the openings in the river are closed again, and the new ice is covered with rosettes.

It blowed considerably yesterday, though it is very still to-day, and the light, dry snow, especially on the meadow ice and the river, was remarkably plowed and drifted by it, and now presents a very wild and arctic scene. Indeed, no part of our scenery is ever more arctic than the river and its meadows now, though the snow was only some three inches deep on a level. It is cold and perfectly still, and you walk over a level snowy tract. It is a sea of white waves of nearly uniform shape and size. Each drift is a low, sharp promontory directed toward the northwest, and showing which way the wind blowed with occasional small patches of bare ice amid them. It is exactly as if you walked over a solid sea where the waves rose about two feet high. These promontories have a general resemblance to one another. Many of them are perfect tongues of snow more or less curving and sharp.

Commonly the wind has made a little hollow in the snow directly behind this tongue, it may be to the ice, spoon-shaped or like a tray, — if small, a cradle in the snow. Again it is a complete canoe, the tongue being its bows.

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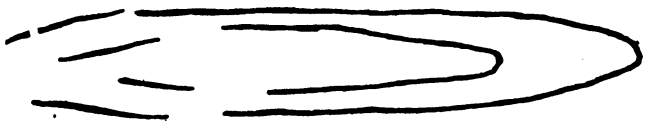
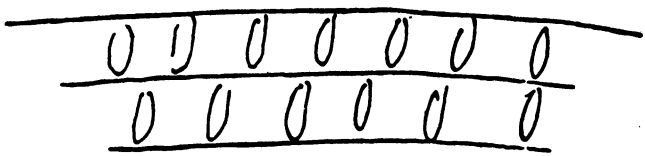


The many distinct firm ridges on a slope of the drift — as if the edges of so many distinct layers cropped out — form undulating parallel lines of great interest. Sometimes yet smaller hollows or cradles, not reaching to the ice and at right angles with the low ridges of the drift, remind you of panelling. Again these oval hollows produce a regular reticulation.



One hour you have bare ice; the next, a level counterpane of snow; and the next, the wind has tossed and sculptured it into these endless and varied forms. It is such a scene as Boothia Felix may present, — if that is any wilder than Concord. I go sliding over the few bare spots, getting a foothold for my run on the very thin sloping and ridged snow. The snow is not thus drifted in fields and meadows generally, but chiefly where there was an icy foundation on which it slid readily. The whole of the snow has evidently shifted, perhaps several times, and you cannot tell whether some slight ridges an inch high are the foundation of a drift just laid or the relics of one removed. Behind

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a tuft of bushes it is collected deep, thus:

I forgot to say that all the ice between the rosettes was thinly sprinkled with very slender grain-like spiculæ, sometimes two together.

The sky was all overcast, but the sun's place quite distinct.

The cloud about the sun had a cold, dry, windy look, as if the cloud, elsewhere homogeneous cold slaty, were there electrified and arranged like iron-filings about the sun, its fibres, so to speak, more or less raying from the sun as a centre.

About 3 P. M. I noticed a distinct fragment of rainbow, about as long as wide, on each side of the sun, one north and the [other] south and at the same height above the horizon with the sun, all in a line parallel with the horizon; and, as I thought, there was a slight appearance of a bow.

The sun-dogs, if that is their name, were not so distinctly bright as an ordinary rainbow, but were plainly orange-yellow and a peculiar light violet-blue, the last color looking like a hole in the cloud, or a thinness through which you saw the sky. This lasted

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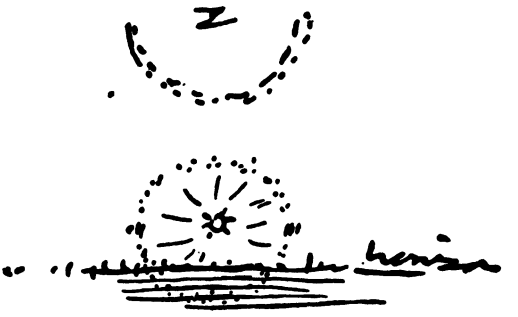
perhaps half an hour, and then a bow about the sun became quite distinct, but only those parts where the sun-dogs were were distinctly rainbow-tinted, the rest being merely reddish-brown and the clouds within finely raying from the sun more or less. But higher up, so that its centre would have been in the zenith



or apparently about in the zenith, was an arc of a distinct rainbow. A rainbow right overhead. Is this what is called a parhelion?

It is remarkable that the straw-colored sedge of the meadows, which in the fall is one of the least noticeable colors, should, now that the landscape is mostly covered with snow, be perhaps the most noticeable of all objects in it for its color, and an agreeable contrast to the snow.

I frequently see where oak leaves, absorbing the heat of the sun, have sunk into the ice an inch in depth and afterward been blown out, leaving a perfect type of the leaf with its petiole and lobes sharply cut, with perfectly

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upright sides, so that I can easily tell the species of oak that made it. Sometimes these moulds have been evenly filled with snow while the ice is dark, and you have the figure of the leaf in white.

I see where some meadow mouse — if not mole — just came to the surface of the snow enough to break it with his back for three or four inches, then put his head out and at once withdrew it.

We walked, as usual, on the fresh track of a fox, peculiarly pointed, and sometimes the mark of two toe-nails in front separate from the track of the foot in very thin snow. And as we were kindling a fire on the pond by the side of the island, we saw the fox himself at the inlet of the river. He was busily examining along the sides of the pond by the button-bushes and willows, smelling in the snow. Not appearing to regard us much, he slowly explored along the shore of the pond thus, half-way round it; at Pleasant Meadow, evidently looking for mice (or moles?) in the grass of the bank, smelling in the shallow snow there amid the stubble, often retracing his steps and pausing at particular spots. He was eagerly searching for food, intent on finding some mouse to help fill his empty stomach. He had a blackish tail and blackish feet. Looked lean and stood high. The tail peculiarly large for any creature to carry round. He stepped daintily about, softly, and is more to the manor born than a dog. It was a very arctic scene this cold day, and I suppose he would hardly have ventured out in a warm one.

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The fox seems to get his living by industry and perseverance. He runs smelling for miles along the most favorable routes, especially the edge of rivers and ponds, until he smells the track of a mouse beneath the snow or the fresh track of a partridge, and then follows it till he comes upon his game. After exploring thus a great many quarters, after hours of fruitless search, he succeeds. There may be a dozen partridges resting in the snow within a square mile, and his work is simply to find them with the aid of his nose. Compared with the dog, he affects me as high-bred, unmixed. There is nothing of the mongrel in him. He belongs to a noble family which has seen its best days, — a younger son. Now and then he starts, and turns and doubles on his track, as if he heard or scented danger. (I watch him through my glass.) He does not mind us at the distance of only sixty rods. I have myself seen one place where a mouse came to the surface to-day in the snow. Probably he has smelt out many such galleries. Perhaps he seizes them *through* the snow.

I had a transient vision of one mouse this winter, and that the first for a number of years.

I have seen a good many of those snails left on the ice during the late thaw, as the caterpillars, etc., were.

Feb. 3. 3 P. M. — To Gowing's Swamp.

I accurately pace the swamp in two directions and find it to be shaped thus: —

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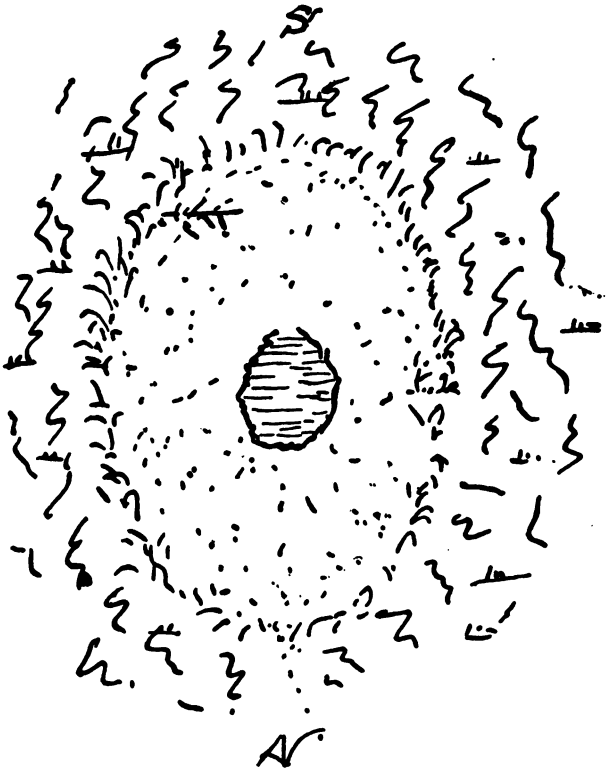

Gowing's Swamp. (Scale of forty paces to an inch)

When I read some of the rules for speaking and writing the English language correctly, — as that a sentence must never end with a particle, — and perceive how implicitly even the learned obey it, I think —

Any fool can make a rule
And every fool will mind it.

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Feb. 5. P. M. — Up Assabet.

2 P. M., 40°.

I see where crows have pecked the tufts of cladonia lichens which peep out of the snow, pulling them to pieces, no doubt looking for worms. Also have eaten the frozen-thawed apples under the trees, tracking all the ground over there.

February 1st, though so cold and the snow so dry, as it blowed pretty hard, was a day of drift behind northerly walls, and when those shell-like drifts were formed, as well as the wild drifts of Hubbard's meadow described on the 3d.

I see at the Assabet stone bridge where, apparently, one or two otters travelled about on the ice last night in the thin snow. The river is open eight or ten rods there, and I noticed their tracks all about the river and close to the edge of the ice, thin as it was, for a dozen rods above and below the bridge. At first, being at a distance, I thought them dog-tracks, but I might have known that no dogs would ever have run about so there, on that thin ice and so near the edge of it. They were generally like this, each four being from fifteen to twenty-four inches apart. Occasionally the track was somewhat like a rabbit's. I saw where one had apparently dragged himself along the ice. They had entered the water in many places, also travelled along under the slanting ice next the bank long distances. They were evidently attracted by that open water. There was no distinct sliding place.

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Coming home last night in the twilight, I recognized a neighbor a dozen rods off by his walk or carriage, though it was so dark that I could not see a single feature of his person. Indeed, his person was all covered up excepting his face and hands, and I could not possibly have distinguished these at this distance from another man's. Nor was it owing to any peculiarity in his dress, for I should have known him though he had had on a perfectly new suit. It was because the man within the clothes moved them in a peculiar manner that I knew him thus at once at a distance and in the twilight. He made a certain figure in any clothes he might wear, and moved in it in a peculiar manner. Indeed, we have a very intimate knowledge of one another; we see through thick and thin; spirit meets spirit. A man hangs out innumerable signs by which we may know him. So, last summer, I knew another neighbor half a mile off up the river, though I did not see him, by the manner in which the breath from his lungs and mouth, *i. e.* his voice, made the air strike my ear. In that manner he communicated himself to all his acquaintance within a diameter of one mile (if it were all up and down the river). So I remember to have been sure once in a very dark night who was preceding me on the sidewalk, — though I could not see him, — by the sound of his tread. I was surprised to find that I knew it.

And to-day, seeing a peculiar very long track of a man in the snow, who has been along up the river this morning, I guessed that it was George Melvin, because it was accompanied by a hound's track. There was a

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thin snow on the ice, and I observed that he not only furrowed the snow for a foot before he completed his step, but that the (toe) of his track was always indefinite, as if his boot had been worn out and prolonged at the toe. I noticed that I and my companion made a clear and distinct track at the toe, but when I experimented, and tried to make a track like this by not lifting my feet but gliding and partly scuffing along, I found myself walking just like Melvin, and that perfectly convinced me that it was he.[1]

We have no occasion to wonder at the instinct of a dog. In these last two instances I surpassed the instinct of the dog.

It may always be a question how much or how little of a man goes to any particular act. It is not merely by taking time and by a conscious effort that he betrays himself. A man is revealed, and a man is concealed, in a myriad unexpected ways; *e. g.*, I can hardly think of a more effectual way of disguising neighbors to one another than by stripping them naked.

Feb. 6. To Cambridge.

A rainy day.

Feb. 7. 2 P. M. — To Walden and Flint's.

Thermometer 43°. Fair, with many clouds, mostly obscuring the sun. Wind northwest, growing cooler.

The sand has begun to flow on the west side of the cut, the east being bare. Nature has some bowels at last.

[1] I told him of it afterward, and he gave a corresponding account of himself.

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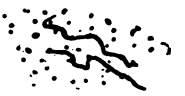
I notice over the ditch near the Turnpike bridge, where water stands an inch or two deep over the ice, that the dust which had blown on to the ice from the road is now very regularly and handsomely distributed over the ice by the water, *i. e.*, is broken into prettily shaped small black figures equally distant from one another, — so that what was a deformity is now a beauty. Some kinds of worms or caterpillars have



apparently crawled over it and left their trails on it, white or clear trails.

Feb. 8. 2 P. M. — Up river to Fair Haven Hill.

Thermometer 43. 40° and upward may be called a *warm* day in the winter.

We have had much of this weather for a month past, reminding us of spring. February may be called *earine* (springlike). There is a peculiarity in the air when the temperature is thus high and the weather fair, at this season, which makes sounds more clear and pervading, as if they trusted themselves abroad further in this genial state of the air. A different sound comes to my ear now from iron rails which are struck, as from the cawing crows, etc. Sound is not abrupt, piercing, or rending, but softly sweet and musical. It will take a yet more genial and milder air before the bluebird's warble can be heard.

Walking over Hubbard's broad meadow on the softened ice, I admire the markings in it. The more interesting and prevailing ones now appearing ingrained and giving it a more or less marbled look, — one, what you may call *checkered* marbling (?),

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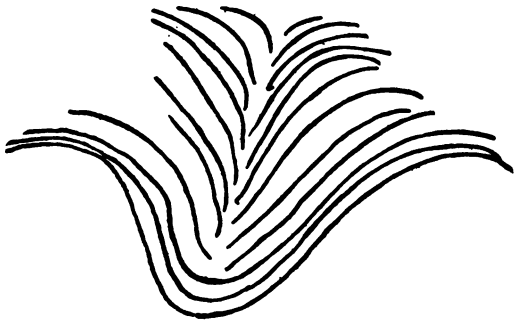
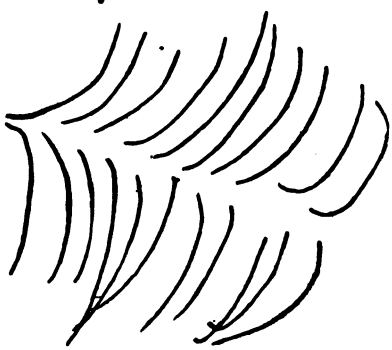
consisting of small polygonal figures three quarters

[of an inch in] diameter, bounded by whitish lines more or less curved within the ice, and apparently covered with an entire thin surface ice, and so on for rods (these when five or six inches wide make a mackerel-sky ice); the other apparently passing from this into a sort of fibrous structure of waving lines, hair-like or rather flame-like, — call it *phlogistic:* — only



far more regular and beautiful than I can draw. Sometimes like perhaps a cassowary's feathers, the branches being very long and fine. This fibrous or phlogistic structure is evidently connected with the flow of the surface water, for I see some old holes, now smoothly frozen over, where these rays have flowed from all sides into the hole in the midst of the checked ice,



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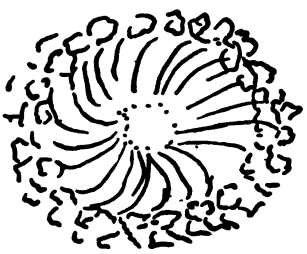
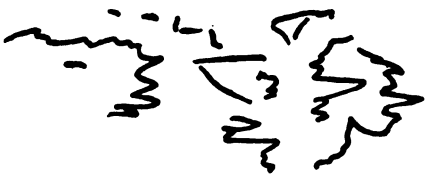
making a circular figure which reminded me of a jellyfish: only far more beautiful than this. The whitish lines which bound these figures and form the parallel fibres are apparently lines of fine bubbles more dense than elsewhere.



I am not sure that these markings always imply a double or triple ice, *i. e.* a thinner surface ice, which contains them.

The ice is thus marked under my feet somewhat as the heavens overhead; there is both the mackerel sky and the fibrous flame or asbestos-like form in both. The mackerel spotted or marked ice is very common, and also reminds me of the reticulations of the pickerel.

I see some quite thin ice which had formed on puddles on the ice, now soaked through, and in these are very interesting figures bounded by straight and crinkled particularly white lines. I find, on turning the ice over, that these lines correspond to the raised edges of and between bubbles which have occupied a place in the ice, *i. e.* upward [?] in it.



Then there is occasionally, where puddles on the ice have frozen, that triangular rib-work of crystals, — a beautiful casting in alto[*sic*]-relievo of low crystal prisms with one edge up, — so meeting and cross-

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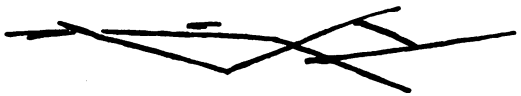
ing as to form triangular and other figures. Shining splinters in the sun. Giving a rough hold to the feet.



One would think that the forms of ice-crystals must include all others.

I see hundreds of oak leaves which have sunk deep into the ice. Here is a scarlet oak leaf which has sunk one inch into the ice, and the leaf still rests at the bottom of this mould. Its stem and lobes and all their bristly points are just as sharply cut there as is the leaf itself, fitting the mould closely and tightly, and, there being a small hole or two in the leaf, the ice stands up through them half an inch high, like so many sharp tacks. Indeed, the leaf is sculptured thus in bas-relief [*sic*], as it were, as sharply and exactly as it could be done by the most perfect tools in any material. But as time has elapsed since it first began to sink into the ice, the upper part of this mould is enlarged by melting more or less, and often shows the outline of the leaf exaggerated and less sharp and perfect. You see these leaves at various depths in the ice, — many quite concealed by new ice formed over them, for water flows into the mould and thus a cast of it is made in ice. So fragments of rushes and sedge and cranberry leaves have on all sides sunk into the ice in like manner. The smallest and lightest-colored object that falls on the ice begins thus at once to sink through it, the sun as it were driving it; and a great many, no doubt, go quite through.

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This is especially common after a long warm spell like this. I see, even, that those colored ridges of froth which have bounded the water that overflowed the ice, since they contain most of the impurities or coloring matter, sink into the ice accordingly, making rough furrows an inch or more deep often.

The proper color of water is perhaps best seen when it overflows white ice.

Pliny could express a natural wonder.

About an old boat frozen in, I see a great many little gyrinus-shaped bugs swimming about in the water above the ice.

Feb. 9. A hoar frost on the ground this morning — for the open fields are mostly bare — was quite a novel sight. I had noticed some vapor in the air late last evening.

Feb. 10. A very strong and a cold northwest wind to-day, shaking the house, — thermometer at 11 A. M., 14°, — consumes wood and yet we are cold, and drives the smoke down the chimney.

I see that Wheildon's pines are rocking and showing their silvery under sides as last spring, — their first awakening, as it were.

P. M. — The river, where open, is very black, as usual when the waves run high, for each wave casts a shadow.[1] Theophrastus notices that the roughened water is black, and says that it is because fewer rays fall on it and the light is dissipated.

It is a day for those rake and horn icicles; the water,

[1] Call it Black Water.

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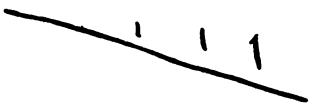
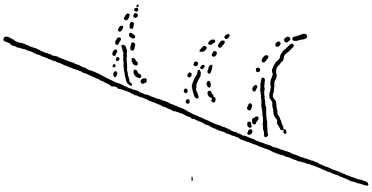
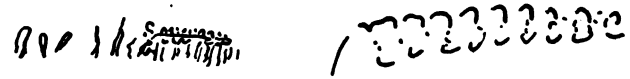
dashing against the southeast shores where they chance to be open, *i. e.* free of ice, and blown a rod inland, freezes to the bushes, forming rakes and oftener horns. If twigs project above the ice-belt thus: the water freezes over them thus: —





The very grass stubble is completely encased for a rod in width along the shore, and the trunks of trees for two or three feet up. Any sprig lying on the edge of the ice is completely crusted. Sometimes the low button-bush twigs with their few remaining small dark balls, and also the drooping corymbs of the late rose hips, are completely encased in an icicle, and you see their bright scarlet reflected through the ice in an exaggerated manner. If a hair is held up above the ice where this spray is blowing, it is sufficient to start a thick icicle rake or horn, for the ice forming around it becomes at once its own support, and gets to be two or three inches thick. Where the open water comes within half a dozen feet of the shore, the spray has blown over the intervening ice and covered the grass and stubble, looking like a glaze, — countless loby fingers and horns over some fine stubble core, — and when the grass or stem is horizontal you



have a rake. Just as those great organ-pipe icicles

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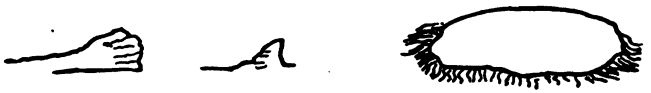
that drip from rocks have an annular structure growing

downward, so these on the horizontal stubble and weeds, when directed to the point toward which the wind was blowing; *i. e.*, they grow thus southeast.

Then there is the thickened edge of the ice, like a cliff, on the southeast sides of openings against which the wind has dashed the waves, especially on the southeast side of broad meadows.



No finer walking in any respect than on our broad meadow highway in the winter, when covered with bare ice. If the ice is wet, you slip in rubbers; but when it is dry and cold, rubbers give you a firm hold, and you walk with a firm and elastic step. I do not know of any more exhilarating walking than up or down a broad field of smooth ice like this in a cold, glittering winter day when your rubbers give you a firm hold on the ice.

I see that the open places froze last night only on the windward side, where they were less agitated, the waves not yet running so high there.

A little snow, however, even the mere shavings or dust of ice made by skaters, hinders walking in rubbers very much, for though the rubber may give a good hold on clear ice, when you step on a little of the ice dust or snow you slide on that.

Those little gyrinus-shaped bugs of the 8th, that had come out through a crevice in the ice about a boat frozen in, and were swimming about in the shallow

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water above the ice, I see are all gone now that that water is frozen, — have not been frozen in; so they must have returned back under the ice when it became cold, and this shows that they were not forced up accidentally in the first place, but attracted by the light and warmth, probably as those minnows were some time ago. That is, in a thaw in the winter some water-insects — beetles, etc. — will come up through holes in the ice and swim about in the sun.

Feb. 11. *Saturday.* 2 P. M., 20°.

Feb. 12. *Sunday.* 2 P. M., 22°.

Walk up river to Fair Haven Pond. Clear and windy, — northwest.

About a quarter of an inch of snow fell last evening. This scarcely colors that part of the ground that was bare, and on all icy surfaces which are exposed to the sweep of the wind it is already distributed very regularly in thin drifts. It lies on the ice in waving lines or in lunar or semicircular, often spread-eagle, patches with very regular intervals, quite like the openings lately seen in the river when breaking up. The whole surface of the icy field is thus watered. That is, it is not collected in one place more than another, but very evenly distributed in these patches over the whole surface. I speak of what lies on the open ice. It comes flowing like a vapor from the northwest, low over the ice and much faster than a man walks, and a part is ever catching and lodging here and there and building a low drift, the northwest side of which will be abrupt

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with a sharp, beetling edge an inch or a half-inch high. No doubt these drifts are constantly changing their ground or rolling over. I see now that this vapor-like snow-dust is really sometimes blown up six or eight feet into the air, though for the most part it merely slides low over the ice.

The greater part of this snow is lodged a foot deep amid the button-bushes, and there it continues to accumulate as long as the wind blows strong.

In this cold, clear, rough air from the northwest we walk amid what simple surroundings! Surrounded by our thoughts or imaginary objects, living in our *ideas*, not one in a million ever sees the objects which are actually around him.

Above me is a cloudless blue sky; beneath, the sky-blue, *i. e.* sky-reflecting, ice with patches of snow scattered over it like mackerel clouds. At a distance in several directions I see the tawny earth streaked or spotted with white where the bank or hills and fields appear, or else the green-black evergreen forests, or the brown, or russet, or tawny deciduous woods, and here and there, where the agitated surface of the river is exposed, the blue-black water. That dark-eyed water, especially when I see it at right angles with the direction

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of the sun, is it not the first sign of spring? How its darkness contrasts with the general lightness of the winter! It has more life in it than any part of the earth's surface. It is where one of the arteries of the earth is palpable, visible.

Those are peculiar portions of the river which have thus always opened first, — been open latest and longest. In winter not only some creatures, but the very earth is partially dormant; vegetation ceases, and rivers, to some extent, cease to flow. Therefore, when I see the water exposed in midwinter, it is as if I saw a skunk or even a striped squirrel out. It is as if the woodchuck unrolled himself and snuffed the air to see if it were warm enough to be trusted.

It excites me to see early in the spring that black artery leaping once more through the snow-clad town. All is tumult and life there, not to mention the rails and cranberries that are drifting in it. Where this artery is shallowest, *i. e.*, comes nearest to the surface and runs swiftest, there it shows itself soonest and you may see its pulse beat. These are the wrists, temples, of the earth, where I feel its pulse with my eye. The living waters, not the dead earth. It is as if the dormant earth opened its dark and liquid eye upon us.

But to return to my walk. I proceed over the sky-blue ice, winding amid the flat drifts as if amid the clouds, now and then treading on that thin white ice (much marked) of absorbed puddles (of the surface), which crackles somewhat like dry hard biscuit. Call it biscuit ice. Some of it is full of internal eyes like bird's-eye maple, little bubbles that *were* open above, and

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elsewhere I tread on ice in which are traced all kinds of characters, Coptic and Syriac, etc. How curious those crinkled lines in ice that has been partly rotted, reaching down half an inch perpendicularly, or else at an angle with the surface, and with a channel that may be felt above!

There are places (a few), like that at Hubbard's Grove, commonly thin or open, leading to the shore, with the ice puffed up, *as if* kept open by a musquash, where apparently a spring comes in. Only betrayed by its being slow to freeze, or by the rottenness of the ice there. This is the least observed of all tributaries, the first evidence of a tributary.

On the east side of the pond, under the steep bank, I see a single lesser redpoll picking the seeds out of the alder catkins, and uttering a faint mewing note from time to time on account of me, only ten feet off. It has a crimson or purple front and breast.

How unexpected is one season by another! Off Pleasant Meadow I walk amid the tops of bayonet rushes frozen in, as if the summer had been overtaken by the winter.

Returning just before sunset, I see the ice beginning to be green, and a rose-color to be reflected from the

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low snow-patches. I see the color from the snow first where there is some shade, as where the shadow of a maple falls afar over the ice and snow. From this is reflected a purple tinge when I see none elsewhere. Some shadow or twilight, then, is necessary, umbra mixed with the reflected sun. Off Holden Wood, where the low rays fall on the river from between the fringe of the wood, the snow-patches are not rose-color, but a very dark purple like a grape, and thus there are all degrees from pure white to black. When crossing Hubbard's broad meadow, the snow-patches are a most beautiful crystalline purple, like the petals of some flowers, or as if tinged with cranberry juice. It is quite a faery scene, surprising and wonderful, as if you walked amid those rosy and purple clouds that you see float in the evening sky. What need to visit the crimson cliffs of Beverly?

I thus find myself returning over a green sea, winding amid purple islets, and the low sedge of the meadow on one side is really a burning yellow.

The hunter may be said to invent his game, as Neptune did the horse, and Ceres corn.

It is twenty above at 5.30, when I get home.

I walk over a smooth green sea, or *aequor*, the sun just disappearing in the cloudless horizon, amid thousands of these flat isles as purple as the petals of a flower. It would not be more enchanting to walk amid the purple clouds of the sunset sky. And, by the way, this is but a sunset sky under our feet, produced by the same law, the same slanting rays and twilight. Here the clouds are these patches of snow or frozen

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vapor, and the ice is the greenish sky between them. Thus all of heaven is realized on earth. You have seen those purple fortunate isles in the sunset heavens, and that green and amber sky between them. Would you believe that you could ever walk amid those isles? You can on many a winter evening. I have done so a hundred times. The ice is a solid crystalline sky under our feet.

Whatever aid is to be derived from the use of a scientific term, we can never begin to see anything as it is so long as we remember the scientific term which always our ignorance has imposed on it. Natural objects and phenomena are in this sense forever wild and unnamed by us.

Thus the sky and the earth sympathize, and are subject to the same laws, and in the horizon they, as it were, meet and are seen to be one.

I have walked in such a place and found it hard as marble.

Not only the earth but the heavens are made our footstool. That is what the phenomenon of ice means. The earth is annually inverted and we walk upon the sky. The ice reflects the blue of the sky. The waters become solid and make a sky below. The clouds grow heavy and fall to earth, and we walk on them. We live and walk on solidified fluids.

We have such a habit of looking away that we see not what is around us. How few are aware that in winter, when the earth is covered with snow and ice, the phenomenon of the sunset sky is double! The one is on the earth around us, the other in the horizon. These

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snow-clad hills answer to the rosy isles in the west. The winter is coming when I shall walk the sky. The ice is a solid sky on which we walk. It is the inverted year. There is an annual light in the darkness of the winter night. The shadows are blue, as the sky is forever blue. In winter we are purified and translated. The earth does not absorb our thoughts. It becomes a Valhalla.

Next above Good Fishing Bay and where the man was drowned, I pass Black Rock Shore, and over the Deep Causeway I come to Drifted Meadow.

North of the Warm Woodside (returning) is Bulrush Lagoon, — off Grindstone Meadow, — a good place for lilies; then Nut Meadow Mouth; Clamshell Bend, or Indian Bend; Sunset Reach, where the river flows nearly from west to east and is a fine sparkling scene from the hills eastward at sunset; then Hubbard's Bathing-Place, and the swift place, and Lily Bay, or Willow Bay.

Feb. 13. 2 P. M. — Down river.

Thermometer 38°. Warm; a cloud just appearing in the west.

That hard meadow just below the boys' bathing-place below the North Bridge is another elfin burial-ground. It would be a bad place to walk in a dark night. The mounds are often in ridges, even as if turned up by the plow.

Water overflowing the ice at an opening in the river, and mixing with thin snow, saturating it, seen now on one side at right angles with the sun's direction, is as

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black as black cloth. It is surprising what a variety of distinct colors the winter can show us, using but few pigments, so to call them. The principal charm of a winter walk over ice is perhaps the peculiar and pure colors exhibited.

There is the *red* of the sunset sky, and of the snow at evening, and in rainbow flocks during the day, and in sun-dogs.

The *blue* of the sky, and of the ice and water reflected, and of shadows on snow.

The *yellow* of the sun and the morning and evening sky, and of the sedge (or straw-color, bright when lit on edge of ice at evening), and *all three* in hoar frost crystals.

Then, for the secondary, there is the *purple* of the snow in drifts or on hills, of the mountains, and clouds at evening.

The *green* of evergreen woods, of the sky, and of the ice and water toward evening.

The *orange* of the sky at evening.

The *white* of snow and clouds, and the *black* of clouds, of water agitated, and water saturating thin snow on ice.

The *russet* and *brown* and *gray*, etc., of deciduous woods.

The *tawny* of the bare earth.

I suspect that the green and rose (or purple) are not noticed on ice and snow unless it is pretty cold, and perhaps there is less greenness of the ice now than in December, when the days were shorter. The ice may now be too old and white.

Those horn, knob, and rake icicles on the southeast

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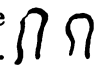
sides of all open places — or that were open on the 10th near enough to the bushes — are suddenly softening and turning white on one side to-day, so that they remind me of the alabaster (?) or plaster images on an Italian's board. All along the ice belt or shelf — for the river has fallen more than a foot — countless white figures stand crowded, their minute cores of sedge or twigs being concealed. Some are like beaks of birds, — cranes or herons. Having seen this phenomenon in one place, I know with certainty in just how many places and where, throughout the town, — four or five, — I shall find these icicles, on the southeast sides of the larger open places which approached near enough to a bushy or reedy shore.

The grass comes very nearly being completely encrusted in some places, but commonly rounded knobs stand up.



The ground being bare, I pick up two or three arrowheads in Tarbell's field near Ball's Hill.

There is nothing more affecting and beautiful to man, a child of the earth, than the sight of the naked soil in the spring. I feel a kindredship with it.

The sun being in a cloud, partly obscured, I see a very dark purple tinge on the flat drifts on the ice earlier than usual, and when afterward the sun comes out below the cloud, I see no purple nor rose. Hence it seems that the twilight has as much or more to do with this phenomenon, supposing the sun to be low, than the slight angle of its rays with the horizon.

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Always you have to contend with the stupidity of men. It is like a stiff soil, a hard-pan. If you go deeper than usual, you are sure to meet with a pan made harder even by the superficial cultivation. The stupid you have always with you. Men are more obedient at first to words than ideas. They mind names more than things. Read to them a lecture on "Education," naming that subject, and they will think that they have heard something important, but call it "Transcendentalism," and they will think it moonshine. Or halve your lecture, and put a psalm at the beginning and a prayer at the end of it and read it from a pulpit, and they will pronounce it good without thinking.

The Scripture rule, "Unto him that hath shall be given," is true of composition. The more you have thought and written on a given theme, the more you can still write. Thought breeds thought. It grows under your hands.

Feb. 15.[1] As in the expression of moral truths we admire any closeness to the physical fact which in all language is the symbol of the spiritual, so, finally, when natural objects are described, it is an advantage if words derived originally from nature, it is true, but which have been turned (*tropes*) from their primary signification to a moral sense, are used, *i. e.*, if the object is personified. The one who loves and understands a thing the best will incline to use the personal pronouns in speaking of it. To him there is no *neuter*

[1] [The manuscript journal volume that begins with this date bears the legend "The early spring" at the beginning.]

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gender. Many of the words of the old naturalists were in this sense doubly tropes.

P. M. — About 30° at 2 P. M. Skated to Bound Rock.

Frequently, the same night that it first freezes, or perhaps in the morning, the ice over the thread of the river will be puffed up for many rods a foot or more, evidently by expanding vapors beneath, and also over the channel of some warm spring emptying in. Also at Walden where it is very shallow or the ice rests on a bar between the pond and a bay.

When lately the open parts of the river froze more or less in the night after that windy day, they froze by stages, as it were, many feet wide, and the water dashed and froze against the edge of each successive strip of ice, leaving so many parallel ridges.

The river is rapidly falling, is more than a foot lower than it was a few days ago, so that there is an ice-belt left where the bank is steep, and on this I skate in many places; in others the ice slants from the shore for a rod or two to the water; and on the meadows for the most part there is no water under the ice, and it accordingly rumbles loudly as I go over it, and I rise and fall as I pass over hillocks or hollows.

From the pond to Lee's Bridge I skated so swiftly before the wind, that I thought it was calm, for I kept pace with it, but when I turned about I found that quite a gale was blowing.

Occasionally one of those puffs (making a pent-roof

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of ice) runs at right angles across the river where there is no spring or stream emptying in. A crack may have started it.

Feb. 16. 2 P. M. — To Walden.

A snow-storm, which began in the night, — and is now three or four inches deep. The ground, which was more than half bare before, is thus suddenly concealed, and the snow lodges on the trees and fences and sides of houses, and we have a perfect wintry scene again. We hear that it stormed at Philadelphia yesterday morning.

As I [look] toward the woods beyond the poorhouse, I see how the trees, especially apple trees, are suddenly brought out relieved against the snow, black on white, every twig as distinct as if it were a pen-and-ink drawing the size of nature. The snow being spread for a background, while the storm still raging confines your view to near objects, each apple tree is distinctly outlined against it.

Suddenly, too, where of late all was tawny-brown in pastures I see a soft snowy field with the pale-brown lecheas just peeping out of it.

It is a moist and starry snow, lodging on trees, — leaf, bough, and trunk. The pines are well laden with it. How handsome, though wintry, the side of a high pine wood, well grayed with the snow that has lodged on it, and the smaller pitch pines converted into marble or alabaster with their lowered plumes like rams' heads!

The character of the wood-paths is wholly changed

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by the new-fallen snow. Not only all tracks are concealed, but, the pines drooping over it and half concealing or filling it, it is merely a long chink or winding open space between the trees.

This snow, as I have often noticed before, is composed of stars and other crystals with a very fine cotton intermixed. It lodges and rests softly on the horizontal limbs of oaks and pines. On the fruit and dry leafets (?) of the alders that slant over the pond it is in the form of little cones two inches high, making them snowball plants. So many little crystalline wheels packed in cotton.

When we descend on to Goose Pond we find that the snow rests more thickly on the numerous zigzag and horizontal branches of the high blueberries that bend over it than on any deciduous shrub or tree, producing a very handsome snowy maze, and can thus distinguish this shrub, by the manner in which the snow lies on it, quite across the pond. It is remarkable also how very distinct and *white* every plane surface, as the rocks which lie here and there amid the blueberries or higher on the bank, — a place where no twig or weed rises to interrupt the pure white impression. In fact, this crystalline snow lies up so light and downy that it evidently admits more light than usual, and the surface is more white and glowing for it. It is semitransparent. This is especially the case with the snow lying upon rocks or musquash-houses, which is elevated and brought between you and the light. It is partially transparent, like alabaster. Also all the birds' nests in the blueberry bushes are revealed, by the great snow-balls they hold.

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Feb. 17. P. M. — Cold and northwest wind, drifting the snow. 3 P. M., thermometer 14°.

A perfectly clear sky except one or two little cloud-flecks in the southwest, which, when I look again after walking forty rods, have entirely dissolved. When the sun is setting the light reflected from the snow-covered roofs is quite a clear pink, and even from white board fences.

Grows colder yet at evening, and frost forms on the windows.

I hear that some say they saw a bluebird and heard it sing last week!! It was probably a shrike.

Minott says that he hears that Heard's testimony in regard to Concord River in the meadow case was that "it is dammed at both ends and cursed in the middle," *i. e.* on account of the damage to the grass there.

We cannot spare the very lively and lifelike descriptions of some of the old naturalists. They sympathize with the creatures which they describe. Edward Topsell in his translation of Conrad Gesner, in 1607, called "The History of Four-footed Beasts," says of the antelopes that "they are bred in India and Syria, near the river Euphrates," and then — which enables you to realize the living creature and its habitat — he adds, "and delight much to drink of the cold water thereof." The beasts which most modern naturalists describe do not *delight* in anything, and their water is neither hot nor cold. Reading the above makes you want to go and drink of the Euphrates yourself, if it is warm weather. I do not know how much of his spirit he owes to Gesner, but he proceeds in his translation to say

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that "they have horns growing forth of the crown of their head, which are very long and sharp; so that Alexander affirmed they pierced through the shields of his soldiers, and fought with them very irefully: at which time his company slew as he travelled to India, eight thousand five hundred and fifty, which great slaughter may be the occasion why they are so rare and seldom seen to this day."

Now here *something* is described at any rate; it is a real account, whether of a real animal or not. You can plainly see the horns which "grew forth" from their crowns, and how well that word "irefully" describes a beast's fighting! And then for the number which Alexander's men slew "as he travelled to India," — and what a travelling was that, my hearers! — eight thousand five hundred and fifty, just the number you would have guessed after the thousands were given, and [an] easy one to remember too. He goes on to say that "their horns are great and made like a saw, and they with them can cut asunder the branches of osier or small trees, whereby it cometh to pass that many times their necks are taken in the twists of the falling boughs, whereat the beast with repining cry, bewrayeth himself to the hunters, and so is taken." The artist too has done his part equally well, for you are presented with a drawing of the beast with serrated horns, the tail of a lion, a cheek tooth (canine?) as big as a boar's, a stout front, and an exceedingly "ireful" look, as if he were facing all Alexander's army.

Though some beasts are described in this book which have no existence as I can learn but in the imagination

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of the writers, they really have an existence there, which is saying not a little, for most of our modern authors have not imagined the actual beasts which they presume to describe. The very frontispiece is a figure of "the gorgon," which looks sufficiently like a hungry beast covered with scales, which you may have dreamed of, apparently just fallen on the track of you, the reader, and snuffing the odor with greediness.

These men had an adequate idea of a beast, or what a beast should be, a very *bellua* (the translator makes the word *bestia* to be "*a vastando*"); and they will describe and will draw you a cat with four strokes, more beastly or beast-like to look at than Mr. Ruskin's favorite artist draws a tiger. They had an adequate idea of the wildness of beasts and of men, and in their descriptions and drawings they did not always fail when they *surpassed* nature.

Gesner says of apes that "they are held for a subtil, ironical, ridiculous and unprofitable beast, whose flesh is not good for meat as a sheep, neither his back for burthen as an asses, nor yet commodious to keep a house like a dog, but of the Grecians terined gelotopoios, made for laughter." As an evidence of an ape's want of "discretion," he says: "A certain ape after a shipwreck, swimming to land, was seen by a countryman, who thinking him to be a man in the water gave him his hand to save him, yet in the mean time asked him what countryman he was, to which he answered that he was an Athenian: Well, said the man, dost thou know Piræus (a port in Athens)? Very well, said the ape, and his wife, friends and children. Whereat the

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man being moved, did what he could to drown him." "They are best contented to sit aloft although tied with chains. . . . They bring forth young ones for the most part by twins, whereof they love the one and hate the other; that which they love they bear on their arms, the other hangeth at the dam's back, and for the most part she killeth that which she loveth, by pressing it too hard: afterward, she setteth her whole delight upon the other."

Feb. 18. A snow-storm, falling all day; wind north-east.

The snow is fine and drives low; is composed of granulated masses one sixteenth to one twentieth of an inch in diameter. Not in flakes at all. I think it is not those large-flaked snow-storms that are the worst for the traveller, or the deepest.

It would seem as if the more odd and whimsical the conceit, the more credible to the mass. They require a surprising truth, though they may well be surprised at any truth. For example, Gesner says of the beaver: "The biting of this beast is very deep, being able to crash asunder the hardest bones, and commonly he never loseth his hold until he feeleth his teeth gnash one against another. Pliny and Solinus affirm, that the person so bitten cannot be cured, except he hear the crashing of the teeth, which I take to be an opinion without truth."

Gesner (unless we owe it to the translator) has a livelier conception of an animal which has no existence, or of an action which was never performed, than most naturalists have of what passes before their eyes. The

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ability to report a thing *as if* [*it*] *had occurred*, whether it did or not, is surely important to a describer. They do not half tell a thing because you might expect them to but half believe it. I feel, of course, very ignorant in a museum. I know nothing about the things which they have there, — no more than I should know my friends in the tomb. I walk amid those jars of bloated creatures which they label frogs, a total stranger, without the least froggy thought being suggested. Not one of them can croak. They leave behind all life they that enter there, both frogs and men. For example, Gesner says again, "The tree being down and prepared, they take one of the oldest of their company, whose teeth could not be used for the cutting, (or, as others say, they constrain some strange beaver whom they meet withal, to fall flat on his back), . . . and upon his belly lade they all their timber, which they so ingeniously work and fasten into the compass of his legs that it may not fall, and so the residue by the tail draw him to the water side, where those buildings are to be framed, and this the rather seemeth to be true, because there have been some such taken that had no hair on their backs, but were pilled, which being espied by the hunters, in pity of their slavery or bondage, they have let them go away free." Gives Albertus and Olaus Magnus as authorities for this.

Melvin tells me that he went a day or two ago to where G. M. Barrett had placed a dead cow of his, and that he found the snow thickly tracked by foxes to within five feet around the carcass, and they appeared

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to have sat down there, but so suspicious of some trick were they that they had not touched it.

Sometimes, when I go forth at 2 P. M., there is scarcely a cloud in the sky, but soon one will appear in the west and steadily advance and expand itself, and so change the whole character of the afternoon and of my thoughts. The history of the sky for that afternoon will be but the development of that cloud.

I think that the most important requisite in describing an animal, is to be sure and give its character and spirit, for in that you have, without error, the sum and effect of all its parts, known and unknown. You must tell what it is to man. Surely the most important part of an animal is its *anima*, its vital spirit, on which is based its character and all the peculiarities by which it most concerns us. Yet most scientific books which treat of animals leave this out altogether, and what they describe are as it were phenomena of dead matter. What is most interesting in a dog, for example, is his attachment to his master, his intelligence, courage, and the like, and not his anatomical structure or even many habits which affect us less.

If you have undertaken to write the biography of an animal, you will have to present to us the living creature, *i. e.*, a result which no man can understand, but only in his degree report the impression made on him.

Science in many departments of natural history does not pretend to go beyond the shell; *i. e.*, it does not get to animated nature at all. A history of animated nature must itself be animated.

The ancients, one would say, with their gorgons,

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sphinxes, satyrs, mantichora, etc., could imagine more than existed, while the moderns cannot imagine so much as exists.

In describing brutes, as in describing men, we shall naturally dwell most on those particulars in which they are most like ourselves, — in which we have most sympathy with them.

We are as often injured as benefited by our systems, for, to speak the truth, no human system is a true one, and a name is at most a mere convenience and carries no information with it. As soon as I begin to be aware of the life of any creature, I at once forget its name. To know the names of creatures is only a convenience to us at first, but so soon as we have learned to distinguish them, the sooner we forget their names the better, so far as any true appreciation of them is concerned. I think, therefore, that the best and most harmless names are those which are an imitation of the voice or note of an animal, or the most poetic ones. But the name adheres only to the accepted and conventional bird or quadruped, never an instant to the real one. There is always something ridiculous in the name of a great man, — as if he were named John Smith. The name is convenient in communicating with others, but it is not to be remembered when I communicate with myself.

If you look over a list of medicinal recipes in vogue in the last century, how foolish and useless they are seen to be! And yet we use equally absurd ones with faith to-day.

When the ancients had not found an animal wild and

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strange enough to suit them, they created one by the mingled [traits] of the most savage already known, — as hyenas, lionesses, pards, panthers, etc., etc., — one with another. Their beasts were thus of wildness and savageness all compact, and more *ferine* and *terrible* than any of an unmixed breed could be. They allowed nature great license in these directions. The most strange and fearful beasts were by them supposed to be the offspring of two different savage kinds. So fertile were their imaginations, and such fertility did they assign to nature. In the modern account the fabulous part will be omitted, it is true, but the portrait of the real and living creature also.

The old writers have left a more lively and lifelike account of the gorgon than modern writers give us of real animals.

Feb. 19. Snow maybe near a foot deep, and now drifting.

Feb. 20. P. M. — I see directly in front [of] the Depot Lee [?] house, on the only piece of bare ground I see hereabouts, a large flock of lesser redpolls feeding. They must be picking up earth, sand, or the withered grass. They are so intent on it that they allow me to come quite near. This, then, is one use for the drifting of snow which lays bare some spots, however deep it may be elsewhere, — so that the birds, etc., can come at the earth. I never thought of this use before. First the snow fell deep and level on the 18th, then, the 19th, came high wind and plowed it out here and there to

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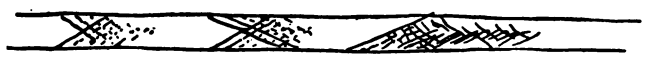
the ground; and so it will always be in some places, however deep it may have been.

J. Farmer tells me that his grandfather once, when moving some rocks in the winter, found a striped squirrel frozen stiff. He put him in his pocket, and when he got home laid him on the hearth, and after a while he was surprised to see him running about the room as lively as ever he was.

I notice a very pale pink reflection from snowy roofs and sides of white houses at sunrise. So both the pink and the green are phenomena of the morning, but in a much less degree, which shows that they depend more on the twilight and the grossness of the atmosphere than on the angle at which the sunlight falls.

Feb. 21. 2 P. M. — Thermometer forty-six and snow rapidly melting. It melts first and fastest where the snow is so thin that it feels the heat reflected from the ground beneath.

I see now, in the ruts in sand on hills in the road, those interesting ripples which I only notice to advantage in very shallow running water, a phenomenon almost, as it were, confined to melted snow running in ruts in the road in a thaw, especially in the spring. It is a spring phenomenon. The water, meeting with some slight obstacle, ever and anon appears to shoot across diagonally to the opposite side, while ripples from



the opposite side intersect the former, producing countless regular and sparkling diamond-shaped ripples.

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If you hold your head low and look along up such a stream in a right light, it is seen to have a regularly braided surface, tress-like, preserving its figures as if it were solid, though the stream is seen pulsing high through the middle ripples in the thread of the stream. The ripples are as rectilinear as ice-crystals. When you see the sparkling stream from melting snow in the ruts, know that then is to be seen this braid of the spring.

It was their very admiration of nature that made the ancients attribute those magnanimous qualities which are rarely to be found in man to the lion as her masterpiece, and it is only by a readiness, or rather preparedness, to see more than appears in a creature that one can appreciate what is manifest.

It is remarkable how many berries are the food of birds, mice, etc. Perhaps I may say that all are, however hard or bitter. This I am inclined to say, judging of what I do not know from what I do. For example, mountain-ash, prinos, skunk-cabbage, sumach, choke-cherry, cornels probably, elder-berry, viburnums, rose hips, arum, poke, thorn, barberry, grapes, tupelo, amphicarpæa, thistle-down, bayberry (?), *Cornus florida*, checkerberry, hemlock, larch, pines, etc., birch, alder, juniper. The berries and seeds of wild plants generally, however little it is suspected by us, are the food of birds, squirrels, or mice.

Feb. 23. 2 P. M. — Thermometer 56°. Wind south. 3 P. M. — Thermometer 58° and snow almost gone. River rising. We have not had such a warm day since the beginning of December (which was remarkably warm).

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I walk over the moist Nawshawtuct hillside and see the green radical leaves of the buttercup, shepherd's-purse (circular), sorrel, chickweed, cerastium, etc., revealed.

About 4 P. M. a smart shower, ushered in by thunder and succeeded by a brilliant rainbow and yellow light from under the dark cloud in the west. Thus the first remarkable heat brings a thunder-shower.

The words "pardall" and "libbard," applied by Gesner to the same animal, express as much of the wild beast as any.

I read in Brand's "Popular Antiquities" that "Bishop Stillingfleet observes, that among the Saxons of the northern nations, the Feast of the New Year was observed with more than ordinary jollity: thence, as Olaus Wormius and Scheffer observe, they reckoned their age by so many Iolas." (*Iola*, to make merry. — Gothic.) So may we measure our lives by our joys. We have lived, not in proportion to the number of years that we have spent on the earth, but in proportion as we have enjoyed.

February is pronounced the coldest month in the year. In B.'s "Popular Antiquities" is quoted this from the Harleian Manuscripts: —

> "Février de tous les mois,
> Le plus court et moins courtois."

In the same work it is said that this saying is still current in the north of England: —

> "On the first of March,
> The crows begin to search."

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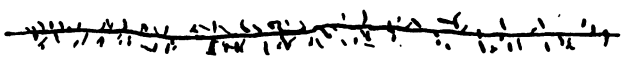
Would it not apply to the crows searching for their food in our meadows, along the water's edge, a little later?

A fact stated barely is dry. It must be the vehicle of some humanity in order to interest us. It is like giving a man a stone when he asks you for bread. Ultimately the moral is all in all, and we do not mind it if inferior truth is sacrificed to superior, as when the moralist fables and makes animals speak and act like men. It must be warm, moist, incarnated, — have been breathed on at least. A man has not seen a thing who has not felt it.

Feb. 24. 2 P. M. — Thermometer 42. A very spring-like day, so much sparkling light in the air.

The clouds reflecting a dazzling brightness from their edges, and though it is rather warm (the wind raw) there are many, finely divided, in a stream southwest to northeast all the afternoon, and some most brilliant mother-o'-pearl. I never saw the green in it more distinct. This on the thin white edges of clouds as if it were a small piece of a rainbow. Some of the finest imaginable rippling, and some fine strings of clouds, narrow ant-eater skeletons, stretching from southwest to northeast, with the wind, looking like a little cotton



caught on a crooked telegraph-wire, the spine is so distinct.

A great part of the very finely divided cloud, one stratum above another, had the appearance of a woven

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web, the fibres crossing each other in a remarkable manner right overhead.

The river risen and quite over the meadows yesterday and to-day, and musquash begun to be killed.

Feb. 25. P. M. — Round *via* Clamshell to Hubbard's Bridge.

Colder, and frozen ground; strong wind, northwest.

I noticed yesterday in the street some dryness of stones at crossings and in the road and sidewalk here and there, and even two or three boys beginning to play at marbles, so ready are they to get at the earth.

The fields of open water amid the thin ice of the meadows are the spectacle to-day. They are especially dark blue when I look southwest. Has it anything to do with the direction of the wind? It is pleasant to see high dark-blue waves half a mile off running incessantly along the edge of white ice. There the motion of the blue liquid is the most distinct. As the waves

rise and fall they seem to run swiftly along the edge of the ice.

The white pine cones have been blowing off more

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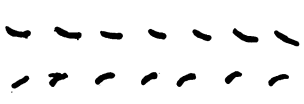
or less in every high wind ever since the winter began, and yet perhaps they have not more than half fallen yet.

For a day or two past I have seen in various places the small tracks apparently of skunks. They appear to come out commonly in the warmer weather in the latter part of February.

I noticed yesterday the first conspicuous silvery sheen from the needles of the white pine waving in the wind. A small one was conspicuous by the side of the road more than a quarter of a mile ahead. I suspect that those plumes which have been appressed or contracted by snow and ice are not only dried but opened and spread by the wind.

Those peculiar tracks which I saw some time ago, and still see, made in slosh and since frozen at the Andromeda Ponds, I think must be mole-tracks, and



those "nicks" on the sides are where they shoved back the snow with their vertical flippers. This is a very peculiar track, a broad channel in slosh, and at length in ice.

Feb. 26. *Sunday.* 2 P. M. — Thermometer 30; cold northwest wind.

The water is about six inches above Hoar's steps. That well covers the meadows generally. Cold and strong northwest wind this and yesterday.

Feb. 27. 2 P. M. — Thermometer 50.

To Abner Buttrick's Hill.

The river has been breaking up for several days,

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and I now see great cakes lodged against each of the bridges, especially at Hunt's and the North Bridge, where the river flows with the wind. For a week or more you could not go to Ball's Hill by the south side of the river. The channel is now open, at least from our neighborhood all the way to Ball's Hill,[1] except the masses of ice moving in it; but the ice generally rests on the bottom of the meadows, — such as was there before the water rose, — and the freshet is for the most part covered with a thin ice except where the wind has broke[n] it up. The high wind for several days has prevented this water from freezing hard.

There are many cranberries washed far on to a large cake of ice which stretches across the river at Hunt's Bridge. The wind subsiding leaves them conspicuous on the middle of the cake.

I noticed yesterday that the skunk-cabbage had not started yet at Well Meadow, and had been considerably frost-bitten.

Heywood says that when the ground is regularly descending from the north to the railroad, a low fence a quarter of a mile off has been found to answer perfectly; if it slopes upward, it must be very near the road.

I walk down the river below Flint's on the north side. The sudden apparition of this dark-blue water on the surface of the earth is exciting. I must now walk where I can see the most water, as to the most living part of nature. This is the blood of the earth, and we see its blue arteries pulsing with new life now. I see, from

[1] Yes, and upward as far as Cardinal Shore, the reach above Hubbard's Bridge being open; thence it is mackerelled up to the pond.

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far over the meadows, white cakes of ice gliding swiftly down the stream, — a novel sight. They are whiter than ever in this spring sun.

The abundance of light, as reflected from clouds and the snow, etc., etc., is more springlike than anything of late.

For several days the earth generally has been bare. I see the tawny and brown earth, the fescue- and lichen-clad hills behind Dakin's and A. Buttrick's.

Among the radical leaves most common, and therefore early-noticed, are the veronica and the thistle, — green in the midst of brown and decayed; and at the bottom of little hollows in pastures, now perhaps nearly covered with ice and water, you see some greener leafets of clover.

I find myself cut off by that arm of our meadow sea which makes up toward A. Buttrick's. The walker now by the river valley is often compelled to go far round by the water, driven far toward the farmers' door-yards.

I had noticed for some time, far in the middle of the Great Meadows, something dazzlingly white, which I took, of course, to be a small cake of ice on its end, but now that I have climbed the pitch pine hill and can overlook the whole meadow, I see it to be the white breast of a male sheldrake accompanied perhaps by his mate (a darker one). They have settled warily in the very midst of the meadow, where the wind has blown a space of clear water for an acre or two. The aspect of the meadow is sky-blue and dark-blue, the former a thin ice, the latter the spaces of open water which the

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wind has made, but it is chiefly ice still. Thus, as soon as the river breaks up or begins to break up fairly, and the strong wind widening the cracks makes at length open spaces in the ice of the meadow, this hardy bird appears, and is seen sailing in the first widened crack in the ice, where it can come at the water. Instead of a piece of ice I find it to be the breast of the sheldrake, which so reflects the light as to look larger than it is, steadily sailing this way and that with its companion, who is diving from time to time. They have chosen the opening farthest removed from all shores. As I look I see the ice drifting in upon them and contracting their water, till finally they have but a few square rods left, while there are forty or fifty acres near by. This is the first bird of the spring that I have seen or heard of.

C. saw a skater-insect on E. Hubbard's Close brook in woods to-day.

Feb. 28. 2 P. M. — Thermometer 52; wind easterly. To Conantum.

I am surprised to see how my English brook cress has expanded or extended since I saw it last fall to a bed four feet in diameter, as if it had grown in the water, though it is quite dirty or muddied with sediment. Many of the sprigs turn upwards and just rest on the water at their ends, as if they might be growing. It has also been eaten considerably by some inhabitant of the water. I am inclined to think it must grow in the winter.

What is that bluish bulb now apparently beginning to shoot in the water there, floating loose (not the water-purslane)?

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I suppose they are linarias which I still see flying about.

Passed a very little boy in the street to-day, who had on a home-made cap of a woodchuck-skin, which his father or elder brother had killed and cured, and his mother or elder sister had fashioned into a nice warm cap. I was interested by the sight of it, it suggested so much of family history, adventure with the chuck, story told about [it], not without exaggeration, the human parents' care of their young these hard times. Johnny was promised many times, and now the work has been completed, — a perfect little idyl, as they say. The cap was large and round, big enough, you would say, for the boy's father, and had some kind of cloth visor stitched to it. The top of the cap was evidently the back of the woodchuck, as it were expanded in breadth, contracted in length, and it was as fresh and handsome as if the woodchuck wore it himself. The great gray-tipped wind hairs were all preserved, and stood out above the brown only a little more loosely than in life. As if he put his head into the belly of a woodchuck, having cut off his tail and legs and substituted a visor for the head. The little fellow wore it innocently enough, not knowing what he had on, forsooth, going about his small business pit-a-pat; and his black eyes sparkled beneath it when I remarked on its warmth, even as the woodchuck's might have done. Such should be the history of every piece of clothing that we wear.

As I stood by Eagle Field wall, I heard a fine rattling sound, produced by the wind on some dry weeds at my

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elbow. It was occasioned by the wind rattling the fine seeds in those pods of the indigo-weed which were still closed, — a distinct rattling din which drew my attention to it, — like a small Indian's calabash. Not a mere rustling of dry weeds, but the shaking of a rattle, or a hundred rattles, beside.

Looking from Hubbard's Bridge, I see a great water-bug even on the river, so forward is the season.

I take up a handsomely spread (or blossomed) pitch pine cone, but I find that a squirrel has begun to strip it first, having gnawed off a few of the scales at the base. The squirrel always begins to gnaw a cone thus at the base, as if it were a stringent law among the squirrel people, — as if the old squirrels taught the young ones a few simple rules like this.

C. saw a dozen robins to-day on the ground on Ebby Hubbard's hill by the Yellow Birch Swamp.

One tells me that George Hubbard told him he saw blackbirds go over this forenoon.

One of the Corner Wheelers feels sure that he saw a bluebird on the 24th, and says he saw a sheldrake in the river at the factory "a month ago." I should say that the sheldrake was our hardiest duck.

It suggests from what point of view Gesner (or his translator) describes an animal, — how far he takes into account man's relation to it, — that he commonly gives the "epithets" which have been applied to it. He deals in description, and epithets are a short description. And the translator says to the reader, "All these rows and ranks of living four-footed beasts are as letters and midwives to save the reverence which is

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due to the Highest (that made them) from perishing within you."

I hear this account of Austin: —

An acquaintance who had bought him a place in Lincoln took him out one day to see it, and Austin was so smitten with the quiet and retirement and other rural charms that he at once sold his house in Concord, bought a small piece of rocky pasture in an out-of-the-way part of this out-of-the-way town, and with the funds raised by the sale of his old house built him a costly stone house upon it. Now he finds that this retirement (or country life) is the very thing which he does not want, but, his property being chiefly invested in the house, he is caught in a trap, as it were, for he cannot sell it, though he advertises it every year. As for society, he has none; his neighbors are few and far between, and he never visits them nor they him. They can do without him, being old settlers, *adscripti glebae*. He found one man in the next town who got his living by sporting and fishing, and he has built him a little hut and got him to live on his place for society and helpfulness. He cannot get help either for the outdoor or indoor work. There are none thereabouts who work by the day or job, and servant-girls decline to come so far into the country. Surrounded by grain-fields, he sends to Cambridge for his oats, and, as for milk, he can scarcely get any at all, for the farmers all send it to Boston, but he has persuaded one to leave some for him at the depot half a mile off.

As it is important to consider Nature from the point of view of science, remembering the nomenclature and

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system of men, and so, if possible, go a step further in that direction, so it is equally important often to ignore or forget all that men presume that they know, and take an original and unprejudiced view of Nature, letting her make what impression she will on you, as the first men, and all children and natural men still do. For our science, so called, is always more barren and mixed up with error than our sympathies are.

As I go down the Boston road, I see an Irishman wheeling home from far a large damp and rotten pine log for fuel. He evidently sweats at it, and pauses to rest many times. He found, perhaps, that his wood-pile was gone before the winter was, and he trusts thus to contend with the remaining cold. I see him unload it in his yard before me and then rest himself. The piles of solid oak wood which I see in other yards do not interest me at all, but this looked like *fuel*. It warmed me to think of it. He will now proceed to split it finely, and then I fear it [will] require almost as much heat to dry it, as it will give out at last. How rarely we are encouraged by the sight of simple actions in the street! We deal with banks and other institutions, where the life and humanity are concealed, — what there is. I like at least to see the great beams half exposed in the ceiling or the corner.

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IV

MARCH, 1860

(ÆT. 42)

March 1. Rain all day. This will apparently take the frost out very much and still further settle the ways. It was already yesterday pretty good bare-ground walking on the north side the street. Yesterday was a dark, louring, moist day and still. The afternoon before, the wind was east, and I think that a storm (snow or rain) always succeeds. To-day is a still, dripping *spring* rain, but more fell in the night. It makes the walking worse for the time, but if it does not freeze again, will greatly help to settle the ways.

I have thoughts, as I walk, on some subject that is running in my head, but all their pertinence seems gone before I can get home to set them down. The most valuable thoughts which I entertain are anything but what *I* thought. Nature abhors a vacuum, and if I can only walk with sufficient carelessness I am sure to be filled.

March 2. Notice the brightness of a row of osiers this morning. This phenomenon, whether referable to a change in the condition of the twig or to the spring air and light, or even to our imaginations, is not the less a real phenomenon, affecting us annually at this

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season. This is one compensation for having them lopped so often along the causeways, that it is only these new and vigorous growths which shine thus.

Frequently within ten days it has been uncomfortable walking in a greatcoat.

2 P. M. — Thermometer 50°. To Witherell Glade *via* Clamshell; thence to Hubbard's Close.

Thinking to look at the cabbage as I pass under Clamshell, I find it very inconspicuous. Most would have said that there was none there. The few tallest and slenderest but tender ones were frost-bitten and far from blooming, but I found three or four more, broad and stout, — a hardy mahogany-colored one, but very low, half covered with the withered sedge, which it lifted up with it, and not apparently open. Putting my finger into one, the broadest and lowest, which opened about half an inch and stood with its back to the west (while they are all sheltered by the hill on the north), I was surprised when I drew it forth to see it covered with pollen. It was fairly in bloom, and probably yesterday too. Evidently some buds are further advanced than others even when the winter comes, and then these are further expanded and matured in advance of the others in the very warm days in the winter. No doubt it may have bloomed in some places in this neighborhood in the last day or two of February this year. Unusually warm weather in February, with bare ground where they grow, may cause them to bloom before February is over. Most would not have detected any change in it since the fall.

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The grass has evidently sprung and grown a little, a very little, of late, say the very last of February, in warm wet places at the south base of hills, like this. It has a healthy but dark-green look. The (apparently) *Epilobium coloratum* has conspicuous green radical leaves there.

I see several minute glaucous sort of grasshoppers skipping over the grass and water. Men shooting musquash these days.

All the grass-stubble in fields not mown is conspicuous pointed eastward, and reflects the light from a thousand parallel lances.

Probably blown thus by the prevailing winds through the winter. Now and for some days look for arrowheads where it is not too soft.

There is a strong westerly wind to-day, though warm, and we sit under Dennis's Lupine Promontory, to observe the water. The great phenomenon these days is the sparkling blue water, — a richer blue than the sky ever is. The flooded meadows are ripple lakes on a large scale. The landscape, though no growth is visible in it, is bright and springlike.

There is the tawny earth (almost completely bare) of different shades, lighter or darker, the light very light in this air, more so than the surface of the earth ever is (*i. e.* without snow), bleached as it were; and, in the hollows of it, set round by the tawny hills and banks, is this copious living and sparkling blue water of various shades. It is more dashing, rippling, sparkling, living, this windy but clear day; never smooth, but ever varying in its degree of motion and depth of blue as the wind is

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more or less strong, rising and falling. All along the shore next us is a strip a few feet wide of very light and smooth sky-blue, for so much is sheltered even by the lowest shore, but the rest is all more or less agitated and dark-blue. In it are, floating or stationary, here and there, cakes of white ice, the least looking like ducks, and large patches of water have a dirty-white or even tawny look, where the ice still lies on the bottom of the meadow. Thus even the meadow flood is *parded*, and of various patches of color. Ever and anon the wind seems to drop down from over the hill in strong puffs, and then spread and diffuse itself in dark fan-shaped figures over the surface of the water. It is glorious to see how it sports on the watery surface. You see a hundred such nimble-footed puffs drop and spread on all sides at once, and dash off, sweeping the surface of the water for forty rods in [a] few seconds, as if so many invisible spirits were playing tag there. It even suggests some fine dust swept along just above the surface, and reminds me of snow blowing over ice and vapor curling along a roof, — meandering like that, often. Like hair, like the crown of the head, curling various ways. The before dark blue is now diversified with much darker or blackish patches with a suggestion of red, — purplish even.

Then the wind blows with stronger gust down the Nut Meadow valley on our right, and I am surprised to see that the billows which it makes are concentric curves apparently reaching round from shore to shore of this broad bay, forty rods wide or more: —

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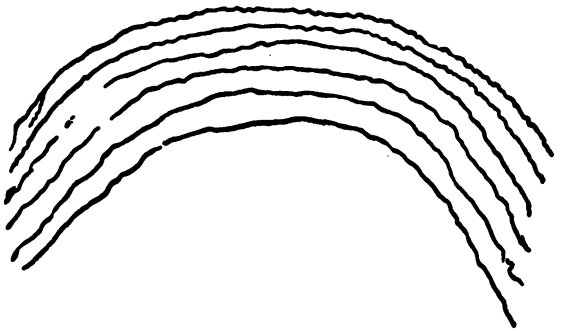

This is conspicuously the form of them. For which two things may account, — the greater force of the wind in the middle and the friction of the shores. And when it blows hardest, each successive billow (four or five feet apart or more) is crowned with yellowish or dirty-white foam. The wind blows around each side of the hill, the opposite currents meeting perchance, or it falls over the hill. So you have a field of ever-varying color, — dark blue, blackish, yellowish, light blue, and smooth sky-blue, and purplish, and yellowish foam, all at once. Sometimes the wind visibly catches up the surface and blows it along and about in spray four or five feet high. Now and then, when the gust increases, there comes a top of fly-away grass from over the hill, goes dancing over the waves, and soon is lost. The requisites are high water mostly clear of ice, ground bare and sufficiently dry, weather warm enough, and wind strong and gusty; then you may sit or stand on a hill and watch this play of the wind with the water. I know of no checker-board more interesting to watch. The wind, the gusts, comb the hair of the water-

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nymphs. You never tire of seeing it drop, spread, and sweep over the yielding and sensitive surface. The water is so full of life, now rising into higher billows which would make your mast crack if you had any, now subsiding into lesser, dashing against and wearing away the still anchored ice, setting many small cakes adrift. How they entertain us with ever-changing scenes, in the sky above or on the earth below! If the plowman lean on his plow-handle and look up or down, there is danger that he will forget his labor on that day.

These are ripple days begun, — not yet in woodland pools, where is ice yet.

I see a row of white pines, too, waving and reflecting their silvery light. The red maple sap flows freely, and probably has for several days. I begin to notice the reddish stems of moss on low ground, not bright yet.

C. has seen good bæomyces (?) lately. There is none however at Bæomyces Bank. In Hosmer's ditches in the moraine meadow, the grass just peeps above the surface, apparently begun to grow a little.

I see on [*sic*] a small round last year's turtle with a yellowish spot on each scale and a yellow-pink breast centred with black. Also see a yellow-spot turtle there.

Some of those tufts of andropogon radical leaves make excellent seats now when the earth is moist.

We see one or two gnats in the air.

See thirty or more crows come flying in the usual irregular zigzag manner in the strong wind, from over M. Miles's, going northeast, — the first migration of them, — without cawing.

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See a little conferva in ditches.

Looking up a narrow ditch in a meadow, I see a modest brown bird flit along it furtively, — the first song sparrow, — and then alight far off on a rock. Ed. Hoar says he heard one February 27th.

Hayden thinks he has seen bluebirds for a *fortnight !!* Say that he has possibly for a week (?), and that will agree with Wheeler. Ed. Hoar says he heard one February 27th.[1]

At Brister Spring, and especially below, at the cowslip, the dense bedded green moss is very fresh and handsome, and the cowslip leaves, though unfolded, rise to the surface.

See a little frog in one of the spring-holes.

See a hen-hawk.

Two or three tufts of carex have shot up in Hosmer's cold spring ditch and been frost-bitten.

Ed. Hoar says he heard a phœbe February 27th.

March 3. 2 P. M. — 50°; overcast and somewhat rain-threatening; wind southwest.

To Abner Buttrick and Tarbell Hills.

See a flock of large ducks in a line, — maybe black? — over Great Meadows; also a few sheldrakes.

It was pleasant to hear the tinkling of very coarse brash — broken honeycombed dark ice — rattling one piece against another along the northeast shores, to which it has drifted.

Scarcely any ice now about river except what rests on the bottom of the meadows, dirty with sediment.

[1] I first hear one March 3d.

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The first song sparrows are very inconspicuous and shy on the brown earth. You hear some weeds rustle, or think you see a mouse run amid the stubble, and then the sparrow flits low away.

When I read Topsell's account of the ichneumon eating his way out of the crocodile, I think that, though it be not true in fact, it is very true in fancy, and it is no small gift to be able to give it so good a setting-forth. What a pity that our modern naturalists cannot tell their truths with half this zest and spirit!

Nowadays we have rain, and then high wind directly after it.

C. says that Walden began to be hard to get on to the first of March.

I saw this afternoon a meadow below Flint's willow-row still frozen over (at 3 P. M.), — frozen last night, — and the frozen part corresponded generally to the anchor ice on the bottom, while there was an open canal all around and beyond the edge of the anchor ice; but when I returned two hours later, the wind had broken up and dissipated every vestige of this surface ice; *i. e.*, it was an ice formed last night which it took the whole day with a strong wind to break up in this rather sheltered place.

Our muddiest and wettest walking thus far was the last week of February. I should have launched my boat ere this if it had been ready. The last skating was on Walden the 26th February. The next day it was soft. Sleighing ended February 22d, and there had not been much a long time before.

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I see one of those gray-winged (long and slender) perla-like insects by the waterside this afternoon.

March 4. *Sunday.* 2 P. M. — To Conantum *via* Clamshell.

Thermometer 44; very strong and gusty northwest wind, with electric-looking wind-clouds. One spits a little rain, but mostly clear.

The frost is all out of the upper part of the garden.

These wind-clouds come up and disappear fast, and have a more or less perpendicular fibre.

Sit under Lupine Promontory again, to see the ripples. The wind is too strong, the waves run too high and incessantly, to allow the distinct puffs or gusts that drop from over the hill to be seen distinctly enough on tumultuous surface. Yet it is interesting. It spreads and runs as a bird spreads its tail suddenly, or it is as if a gust fell on a head of dark hair and made dimples or "crowns" in it, or it is as when dust before a brisk sweeper curls along over a floor.

There is much less of that yellowish anchor ice than on the 2d. Cakes of it successively rise, being separated by warmth from the bottom, and are driven off to the leeward shore. In some places that shore is lined with such cakes now, which have risen and been blown clear across the meadow and river, — large masses. Some portions of them are singularly saturated, of a yellowish or clay-color, and an uneven upper surface, with a finely divided perpendicular grain, looking (in form) just like some kinds of fungi (that commonly yellowish kind). There the smaller

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pieces, of irregular form, strike against one another and make a pleasant musical, or tinkling, sound. Some of the ice will occasionally be lifted up on its edge two feet high and very conspicuous afar.

That reddish-purple tinge in the meadow ripples appears to be owing to a reflection in some cases from the somewhat russet bottom.

I see some curled dock, just started.

The earth is never lighter-colored than now, — the hillsides reflecting the sun when first dried after the winter, — especially, methinks, where the sheep's fescue grows (?). It contrasts finely with the rich blue of the water.

I saw half a dozen crows on a cake of ice in the middle of the Great Meadows yesterday, evidently looking for some favorite food which is washed on to it, — snails, or cranberries perhaps.

I see a bush of the early willow — by wall far in front of the C. Miles house — whose catkins are conspicuous thirty rods off, very decidedly green, three eighths of an inch by measure. The bush at this distance had quite a silvery look, and the catkins show some redness within. Many of the scales as usual had fallen.

A hen-hawk rises and sails away over the Holden Wood as in summer. Saw and heard one scream the 2d.

I notice, where (ice or) snow has recently melted, a very thin dirty-white web like a dense cobweb, left flat on the grass, such as I saw some years ago.

There is a broad and very black space extending through Fair Haven Pond over the channel, visible

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half a mile off, where the ice is thinnest and saturated with water. The channel is already open a little way at the upper end of the pond. This pond at its outlet contracts gradually into the river, so that you could hardly tell where the pond left off and the river began. I see that the ice at present extends that way only so far as I last year assumed that the pond did. In this sense the river hence to the Hubbard Bridge is pond-like compared with the portion below.

See two apparently sternothærus eggs dropped in a slight hollow in the grass, evidently imperfectly planted by the turtle; still whole.

The last three have been true March days for wind.

The handsome and neat brown (pale-brown yet distinct on the lighter withered sod) of the lechea is now conspicuous as a shading in the drying fields.

See no ducks to-day, though much water. Nights too cold?

Aspen down a quarter of an inch out.

March 5. The meadows skim over at night.

White pine cones half fallen.

The old naturalists were so sensitive and sympathetic to nature that they could be surprised by the ordinary events of life. It was an incessant miracle to them, and therefore gorgons and flying dragons were not incredible to them. The greatest and saddest defect is not credulity, but our habitual forgetfulness that our science is ignorance.

Chickweed and shepherd's-purse in bloom in C.'s garden, and probably all winter, or *each month.*

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The song sparrows begin to sing hereabouts.

I see some tame ducks in the river, six of them. It is amusing to see how exactly perpendicular they will stand, with their heads on the bottom and their tails up, plucking some food there, three or four at once. Perhaps the grass, etc., is a little further advanced there for them.

George Buttrick thinks that forty musquash have been killed this spring between Hunt's and Flint's Bridge. The best time to hunt them is early morning and evening. His father goes out at daybreak, and can kill more in one hour after that than from that time to near sunset. He says that *he* has found eleven young in one musquash, and that Joel Barrett observed that one pair near his house bred five times in one year. Thought it would hardly pay to shoot them for their fur alone, but would if you owned river-meadow banks, they undermine them so.

So far as the natural history is concerned, you often have your choice between uninteresting truth and interesting falsehood.

As the ancients talked about "hot and cold, moist and dry," so the moderns talk about "electric" qualities.

As we sat under Lupine Promontory the other day, watching the ripples that swept over the flooded meadow and thinking what an eligible site that would be for a cottage, C. declared that we did not live in the country as long as we lived on that village street and only took walks into the fields, any more than if we lived in Boston or New York. We enjoyed none of the immortal quiet of the country as we might here, for instance, but per-

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chance the first sound that we hear in the morning, instead of the tinkling of a bird, is your neighbor hawking and spitting.

Our spiræas have been considerably unfolded for several days.

Ways fairly settled generally.

March 6. 3 P. M. 44°. Fair and springlike, *i. e.* rather still for March, with some raw wind. Pleasant in sun.

Going by Messer's, I hear the well-known note and see a flock of *F. hyemalis* flitting in a lively manner about trees, weeds, walls, and ground, by the roadside, showing their two white tail-feathers. They are more fearless than the song sparrow. These attract notice by their numbers and incessant twittering in a social manner.

The linarias have been the most numerous birds the past winter.

Mr. Stacy tells me that the flies buzzed about him as he was splitting wood in his yard to-day.

I can scarcely see a heel of a snow-drift from my window.

Jonas Melvin says he saw hundreds of "speckled" turtles out on the banks to-day in a voyage to Billerica for musquash. Also saw gulls. Sheldrakes and black ducks are the only ones he has seen this year. They are fishing on Flint's Pond to-day, but find it hard to get on and off.

C. hears the nuthatch.

Jonas Melvin says that he shot a sheldrake in the river late last December.

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A still and mild moonlight night and people walking about the streets.

March 7. Frost this morning, though completely overcast.

3 P. M. — 34°.

A little sleety snow falling all day, which does not quite cover the ground, — a sugaring. Song sparrow heard through it; not bluebird.

White maple buds partly opened, so as to admit light to the stamens, some of them, yesterday at least.

C. says that he saw a swarm of very small gnats in the air yesterday.

March 8. 2.30 P. M. — 50°. To Cliffs and Walden.

See a small flock of grackles on the willow-row above railroad bridge. How they sit and make a business of chattering! for it cannot be called singing, and no improvement from age to age perhaps. Yet, as *nature* is a *becoming*, their notes may become melodious at last. At length, on my very near approach, they flit suspiciously away, uttering a few subdued notes as they hurry off.

This is the first *flock* of blackbirds I have chanced to see, though Channing saw one the 6th. I suspect that I have seen only grackles as yet.

I saw, in Monroe's well by the edge of the river, the other day, a dozen frogs, chiefly shad frogs, which had been dead a good while. It may be that they get into that sort of spring-hole in the fall to hibernate, but for some reason die; or perhaps they are always

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jumping into it in the summer, but at that season are devoured by some animal before they infest the water.

Now and for some days I see farmers walking about their fields, knocking to pieces and distributing the cow-dung left there in the fall, that so, with the aid of the spring rains, they fertilize a larger surface and more equally.

To say nothing of fungi, lichens, mosses, and other cryptogamous plants, you cannot say that vegetation absolutely ceases at any season in this latitude; for there is grass in some warm exposures and in springy places, always growing more or less, and willow catkins expanding and peeping out a little further every warm day from the very beginning of winter, and the skunk-cabbage buds being developed and actually flowering sometimes in the winter, and the sap flowing [in] the maples in midwinter in some days, perhaps some cress growing a little (?), certainly some pads, and various naturalized garden weeds steadily growing if not blooming, and apple buds sometimes expanding. Thus much of vegetable life or motion or growth is to be detected every winter. There is something of spring in all seasons. There is a large class which is evergreen in its radical leaves, which make such a show as soon as the snow goes off that many take them to be new growth of the spring.

At the pool on the south side of Hubbard's Grove, I notice that the crowfoot, *i. e.* buttercup, leaves which are at the bottom of the water stand up and are much more advanced than those two feet off in the air, for

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there they receive warmth from the sun, while they are sheltered from cold winds.

Nowadays we separate the warmth of the sun from the cold of the wind and observe that the cold does not pervade all places, but being due to strong northwest winds, if we get into some sunny and sheltered nook where they do not penetrate, we quite forget how cold it is elsewhere.

In some respects our spring, in its beginning, fluctuates a whole month, so far as it respects ice and snow, walking, sleighing, etc., etc.; for some years winter may be said to end about the first of March, and other years it may extend into April.

That willow-clump by railroad at Walden looks really silvery.

I see there that moles have worked for several days. There are several piles on the grass, some quite fresh and some made before the last rain. One is as wide as a bushel-basket and six inches high; contains a peck at least. When I carefully remove this dirt, I cannot see, and can scarcely detect by feeling, any looseness in the sod beneath where the mole came to the surface and discharged all this dirt. I do feel it, to be sure, but it is scarcely perceptible to my fingers. The mole must have filled up this doorway very densely with earth, perhaps for its protection.

Those small green balls in the Pout's-Nest — and in the river, etc. — are evidently the buds by which the *Utricularia vulgaris* are propagated. I find them attached to the root as well as adrift.

I noticed a very curious phenomenon in this pond.

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It is melted for two or three rods around the open side, and in many places partly filled with a very slender thread-like spike-rush (apparently *Eleocharis tenuis?*) which is matted more or less horizontally and floating, and is much bleached, being killed. In this fine matting I noticed perfectly straight or even cuts a rod or more in length, just as if one had severed this mass of fine rush as it lay [?] with some exceeding sharp instrument. However, you could not do it with a scythe, though you might with scissors, if it were ruled. It is as if you were to cover a floor with very fine flaccid grass and tread it to one inch in thickness, and then cut this web straight across. The fact is, this floating matting (it also rests partly on soft mud) was not cut at all, but pulled apart on a straight line, producing the exact appearance of a cut, as if you were to pull a piece of felt apart by a force on each side and yet leave the edge as straight as if it had been cut. It had been frozen in, and when the ice cracked it was in an instant thus pulled apart, without further disturbing the relative position of the fibres. I first conjectured this, and then saw the evidence of it, for, glancing my eye along such a cut, which ran at right angles with the shore, I saw that it exactly corresponded at its termination to an old crack in the ice which was still unmelted and which continued its course exactly. This in the ice had been filled and cemented so as to look like a white seam. Would this account for such a crack being continued into the meadow itself, as I have noticed?

I meet some Indians just camped on Brister's Hill. As usual, they are chiefly concerned to find where black

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ash grows, for their baskets. This is what they set about to ascertain as soon as they arrive in any strange neighborhood.

March 9. Snows this forenoon, whitening the ground again.

2 and 3 P. M. — Thermometer 41°.

I have seen three or four pieces of coral in the fields of Concord, and Mr. Pratt has found three or four on his farm. How shall they be accounted for? Who brought them here? and when?

These barns shelter more beasts than oxen and horses. If you stand awhile in one of them now, especially where grain is piled, you will hear ever and anon a rustling in it made by the mice, which take the barn to be their home, as much as the house is yours.

As I recall it, February began cold, with some dry and fine driving snow, making those shell-shaped drifts behind walls, and some days after were some wild but low drifts on the meadow ice. I walked admiring the winter sky and clouds.

After the first week, methinks, it was much milder, and I noticed that some sounds, like the tinkling of railroad rails, etc., were springlike. Indeed, the rest of the month was *earine*, river breaking up a part and closing again, and but little snow.

About 8th and 12th, the beauty of the ice on the meadows, partly or slightly rotted, was noticeable, with the curious figures in it, and, in the coolest evenings, the green ice and rosy isles of flat drifts.

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About the 9th, noticed the very black water of some open reaches, in a high wind and cold.

About the middle of the month was a moist, lodging snow, and the 18th a fine granular one, making about a foot, — the last. Then sudden warm weather and rain come and dissolve it all at once, and the ruts, flowing with melted snow, shone in the sun, and the little sleighing was all gone. And from the 25th to 27th the river *generally* broke up.

March began warm, and I admired the ripples made by the gusts on the dark-blue meadow flood, and the light-tawny color of the earth, and was on the alert for several days to hear the first birds. For a few days past it has been generally colder and rawer, and the ground has been whitened with snow two or three times, but it has all been windy.

You incline to walk now along the south side of hills which will shelter you from the blustering northwest and north winds. The sidewalks are wet in the morning from the frost coming out.

March 10. 2 P. M. — About 30°.

March 11. *Sunday*. 2 P. M. — About 40°.

It is cold and blustering walking in the wind, though the thermometer is at 40; *i. e.*, though the temperature is thus high, the strong and blustering northwest winds of March make this notorious March weather, which is worse to bear than severe cold without wind.

The farmers say that there is nothing equal to the March winds for drying wood. It will dry more this month than it has in all the winter before.

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I see a woodchuck out on the calm side of Lee's Hill (Nawshawtuct). He has pushed away the withered leaves which filled his hole and come forth, and left his tracks in those slight patches of the recent snow which are left about his hole.

I was amused with the behavior of two red squirrels as I approached the hemlocks. They were as gray as red, and white beneath. I at first heard a faint, sharp chirp, like a bird, within the hemlock, on my account, and then one rushed forward on a descending limb toward me, barking or chirruping at me after his fashion, within a rod. They seemed to vie with one another who should be most bold. For four or five minutes at least, they kept up an incessant chirruping or squeaking bark, vibrating their tails and their whole bodies and frequently changing their position or point of view, making a show of rushing forward, or perhaps darting off a few feet like lightning and barking still more loudly, *i. e.* with a yet sharper exclamation, as if frightened by their own motions; their whole bodies quivering, their heads and great eyes on the *qui vive*. You are uncertain whether it is not half in sport after all.

March 12. Sleet, turning soon to considerable rain, — a rainy day. Thermometer about 40, yet it seems a warm rain to walk in, it being still, while yesterday, of the same temperature, with that raw northwest wind, was cold and blustering. It is the wind of March that makes it unpleasant often, and to seem much colder than it is.

March 13. Quite overcast all day. Thermometer 36.

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March 14. 2 P. M. — Thermometer 39. Overcast, with a flurry of snow and a little rain, till 4.30 P. M. To Walden and Cliffs.

I am surprised to find Walden almost entirely open. There is only about an acre of ice at the southeast end, north of the Lincoln bound, drifted there, and a little old and firm and snowy in the bottom of the deep south bay. I may say it opens to-morrow.[1] I have not observed it to open before before the 23d of March.[2] But Fair Haven Pond has not yet a channel through it, nor half through, though it is wholly clear, on an average, two or three days before Walden. However, it is clear enough why Walden has broken up thus early this year. It does not ordinarily freeze till near the end of December (average of twelve observations, December 25th[3]), while Fair Haven Pond freezes about December 2d. But this past winter our cold weather was mostly confined to December, which was remarkable for its uniform cold, while January and February were very open and pleasant. So that Fair Haven Pond, having more than three weeks the start, and that being almost all the cold weather that we had, froze much the thickest. Walden did not freeze so thick as usual. If we have an average winter up to January, but a particularly warm one afterward, Walden will break up early, not having had any chance to freeze thick.

You must look sharp to see if the pond is wholly clear of ice. Standing on the northerly shore, I did not

[1] *Vide* 17th.

[2] March 19, 1856, it was twenty-six inches thick!!

[3] Also it froze over the 25th in '59.

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detect any, but, having ascended the peak, I saw a field of an acre which had drifted to the southeast corner, beside some in the deep south bay.

As I stand there, I see some dark ripples already drop and sweep over the surface of the pond, as they will ere long over Ripple Lake and other pools in the wood. No sooner has the ice of Walden melted than the wind begins to play in dark ripples over the surface of the virgin water. It is affecting to see Nature so tender, however old, and wearing none of the wrinkles of age. Ice dissolved is the next moment as perfect water as if it had been melted a million years. To see that which was lately so hard and immovable now so soft and impressible! What if our moods could dissolve thus completely? It is like a flush of life in a cheek that was dead. It seems as if it must rejoice in its own newly acquired fluidity, as it affects the beholder with joy. Often the March winds have no chance to ripple its face at all.

I see on the peak several young English cherry trees six or eight feet high, evidently planted by birds and growing well. I have seen a pretty large one formerly on Fair Haven Hill. If the stone falls in a sprout-land like this they may attain to be sizable trees. These grew nearly a foot last year and look quite healthy. The bird must have brought the stone far to this locality.

Every craftsman looks at his own objects with peculiar eyes. I thought of this on seeing these young cherry trees and remembering how I used to distinguish the erect and lusty shoots when I cultivated a small nursery,

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for budding. One eye will mark how much the twigs grew last year, another the lichens on the trunk.

Standing on the Cliffs, I see that the young oaks on the plain beneath now look thin-leaved, showing the upright gray stems. The steady March winds have blown off so many leaves.

The Peterboro Hills are covered with snow, though this neighborhood is bare. We thus see winter retiring for some time after she [*sic*] has left us, commonly.

I see that the Indians have got their black ash and made a basket or two, the large kind, — one a bushel-basket, the rim of white oak, — and they have hung them on the trees, as if to exhibit their wares. May not that size and style of basket be an Indian invention?

March 15. I hear that there was about one acre of ice only at the southwest corner (by the road) of Flint's Pond on the 13th. It will probably, then, open entirely to-day, with Walden.

Though it is pretty dry and settled travelling on open roads, it is very muddy still in some roads through woods, as the Marlborough road or Second Division road.

2 P. M. — To Lee's Cliff.

Thermometer 50°. On the whole the finest day yet (the thermometer was equally high the 3d),[1] considering the condition of the earth as well as the temperature of the air. Yet I think I feel the heat as much if not more than I did on the 23d of February, when the

[1] 2d and 8th. *Vide* next page.

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thermometer rose to 58°. Is it because there was more snow lying about then? The comparative stillness, as well as the absence of snow, has an effect on our imaginations, I have no doubt. Our cold and blustering days this month, thus far, have averaged about 40°. Here is the first fair, and at the same time calm and warm, day.

Looking over my Journal, I find that the —

1st of March was rainy.		
2	at 2 P. M.	56°
3		50
4		44
5	(probably as low)	
6	at 3 P. M.	44
7	" " " "	34
8	2 P. M.	50
9	" " "	41
10		30
11		40
12		40
13		36
14		39
15		50

The temperature has been as high on three days this month, and on the 3d [*sic*] considerably higher, and yet this has seemed the warmest and most summer-like, evidently owing to the calmness and greater absence of snow. How admirable in our memory lies a calm warm day amid a series of cold and blustering ones! The 11th was cold and blustering at 40; to-day delightfully warm and pleasant (being calm) at 50°.

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I see those devil's-needle-like larvæ in the warm pool south of Hubbard's Grove (with two tails) swimming about and rising to the top.

What a difference it makes whether a pool lies open to the sun or is within a wood, — affecting its breaking-up. This pool has been open at least a week, while that three or four rods from it in the woods is still completely closed and dead.

It is very warm under the south edge of the wood there, and the ground, as for some time, — since snow went off, — is seen all strewn with the great white pine cones which have been blown off during the winter, — part of the great crop of last fall, — of which apparently as many, at least, still remain on the trees.

A hen-hawk sails away from the wood southward. I get a very fair sight of it sailing overhead. What a perfectly regular and neat outline it presents! an easily recognized figure anywhere. Yet I never see it represented in any books. The exact correspondence of the marks on one side to those on the other, as the black or dark tip of one wing to the other, and the dark line midway the wing. I have no idea that one can get as correct an idea of the form and color of the under sides of a hen-hawk's wings by spreading those of a dead specimen in his study as by looking up at a free and living hawk soaring above him in the fields. The penalty for obtaining a petty knowledge thus dishonestly is that it is less interesting to men generally, as it is less significant. Some, seeing and admiring the neat figure of the hawk sailing two or three hundred feet above their heads, wish to get nearer and hold it in their hands, perchance, not

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realizing that they can see it best at this distance, better now, perhaps, than ever they will again. What is an eagle in captivity! — screaming in a courtyard! I am not the wiser respecting eagles for having seen one there. I do not wish to know the length of its entrails.

How neat and all compact this hawk! Its wings and body are all one piece, the wings apparently the greater part, while its body is a mere fullness or protuberance between its wings, an inconspicuous pouch hung there. It suggests no insatiable maw, no corpulence, but looks like a larger moth, with little body in proportion to its wings, its body naturally more etherealized as it soars higher.

These hawks, as usual, began to be common about the first of March, showing that they were returning from their winter quarters.

I see a little ice still under water on the bottom of the meadows by the Hubbard's Bridge causeway.

The frost is by no means out in grass upland.

I see to-day in two places, in mud and in snow, what I have no doubt is the track of the woodchuck that has lately been out, with peculiarly spread toes like a little hand.

Am surprised to hear, from the pool behind Lee's Cliff, the croaking of the wood frog. It is all alive with them, and I see them spread out on the surface. Their note is somewhat in harmony with the rustling of the now drier leaves. It is more like the note of the classical frog, as described by Aristophanes, etc. How suddenly they awake! yesterday, as it were, asleep and dormant, to-day as lively as ever they are. The awakening of the

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leafy woodland pools. They must awake in good condition. As Walden opens eight days earlier than I have known it, so this frog croaks about as much earlier.

Many large fuzzy gnats and other insects in air.

It is remarkable how little certain knowledge even old and weather-wise men have of the comparative earliness of the year. They will speak of the passing spring as earlier or later than they ever knew, when perchance the third spring before it was equally early or late, as I have known.

March 16. 2 P. M. — Thermometer 55; wind slight, west by south. To Abner Buttrick's Hill.

The buttercup radical leaves are many of them now a healthy dark green, as if they had acquired new life. I notice that such are particularly downy, and probably that enables them to endure the cold so well, like mullеins. Those and thistles and shepherd's-purse, etc., have the form of rosettes on the brown ground.

Here is a flock of red-wings. I heard one yesterday, and I see *a female* among these. These are easily distinguished from grackles by the richness and clarity of their notes, as if they were a more developed bird. How handsome as they go by in a checker, each with a bright-scarlet shoulder! They are not so very shy, but mute when we come near. I think here are four or five grackles with them, which remain when the rest fly. They cover the apple trees like a black fruit. The air is full of song sparrows and bluebirds to-day.

The minister asked me yesterday: "What birds are

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they that make these little tinkling sounds? I have n't seen one." Song sparrows.

C. saw a green fly yesterday.

Saw a flock of sheldrakes a hundred rods off, on the Great Meadows, mostly males with a few females, all intent on fishing. They were coasting along a spit of bare ground that showed itself in the middle of the meadow, sometimes the whole twelve apparently in a straight line at nearly equal distances apart, with each its head under water, rapidly coasting along back and forth, and ever and anon one, having caught something, would be pursued by the others. It is remarkable that they find their finny prey on the middle of the meadow now, and even on the very inmost side, as I afterward saw, though the water is quite low. Of course, as soon as they are seen on the meadows there are fishes there to be caught. I never see them fish thus in the channel. Perhaps the fishes lie up there for warmth already.

I also see two gulls nearly a mile off. One stands still and erect for three quarters of an hour, or till disturbed, on a little bit of floated meadow-crust which rises above the water, — just room for it to stand on, — with its great white breast toward the wind. Then another comes flying past it, and alights on a similar perch, but which does not rise quite to the surface, so that it stands in the water. Thus they will stand for an hour, at least. They are not of handsome form, but look like great wooden images of birds, bluish-slate and white. But when they fly they are quite another creature.

The grass is covered with gossamer to-day, though I notice no floating flocks. This, then, is a phenomenon

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of the first warm and calm day after the ground is bare.

See larks about, though I have heard of them in the winter.

March 17. P. M. — To Walden and Goose Pond.

Thermometer 56; wind south, gentle; somewhat overcast.

There is still perhaps a half-acre of ice at the bottom of the deep south bay of Walden. Also a little at the southeast end of Goose Pond. Ripple Lake is mostly covered yet.

I see a large flock of sheldrakes, which have probably risen from the pond, go over my head in the woods. A dozen large and compact birds flying with great force and rapidity, spying out the land, eyeing every traveller, fast and far they "steam it" on clipping wings, over field and forest, meadow and flood; now here, and you hear the whistling of their wings, and in a moment they are lost in the horizon. Like swift propellers of the air. Whichever way they are headed, that way their wings propel them. What health and vigor they suggest! The life of man seems slow and puny in comparison, — reptilian.

The cowslip leaves are now expanded.

The rabbit and partridge can eat wood; therefore they abound and can stay here all the year.

The leaves on the woodland floor are already getting to be dry.

How handsome a flock of red-wings, ever changing its oval form as it advances, by the rear birds passing the others!

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Was not that a marsh hawk, a slate-colored one which I saw flying over Walden Wood with long, slender, *curving* wings, with a diving, zigzag flight? [1]

March 18. *Sunday*. Quite a fog, — after three warm days, — lasting till 8 A. M.

2 P. M. — Thermometer 56. Wind south, but soon changes to southeast, making the air fresh and hazy and rippling the before smooth water. The water is low on the meadows. The Mantatuket Meadow nearly half bare.

Go [to] Cold Pool (J. P. B.'s).

When we start it is stiller, *i. e.* calmer, than the last two days, and therefore seems warmer. Let there be a strong northwest wind with the thermometer at 40 at this season, and we shall call it cold and blustering; but let the thermometer rise only ten degrees, or to 50, and, if it is quite fair and calm, we shall call it a summer day. The thermometer does not give account of the wind, but our moods are very obedient to it.

I examine the skunk-cabbage, now generally and abundantly in bloom all along under Clamshell. It is a flower, as it were, without a leaf. All that you see is a stout beaked hood just rising above the dead brown grass in the springy ground now, where it has felt the heat, under some south bank. The single enveloping leaf, or "spathe," is all the flower that you see commonly, and those are as variously colored as tulips and of similar color, — from a very dark almost black mahogany to a light yellow streaked or freckled

[1] No doubt it was, for I see another, a brown one, the 19th.

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with mahogany. It is a leaf simply folded around the flower, with its top like a bird's beak bent over it for its further protection, evidently to keep off wind and frost, with a sharp angle down its back. These various colors are seen close together, and their beaks are bent in various directions.

All along under that bank I heard the hum of honey-bees in the air, attracted by this flower. Especially the hum of one within a spathe sounds deep and loud. They circle about the bud at first hesitatingly, then alight and enter at the open door and crawl over the spadix, and reappear laden with the yellow pollen. What a remarkable instinct it is that leads them to this flower! This bee is said to have been introduced by the white man, but how much it has learned! This is the only indigenous flower in bloom in this town at present,[1] and probably I and my companion are the only men who have detected it this year; yet this foreign fly has left its home, probably a mile off, and winged its way to this warm bank to the only indigenous flower that has been in flower for a fortnight past. (Probably the chickweed and shepherd's-purse are of no use to it.)

There is but one indigenous flower in bloom in the town, and has been but one for sixteen days past, and probably this is the only one which the honey-bee can use, and this has only been detected hitherto by the botanist; yet this imported insect knows where to find it, and is sure to be heard near it. Six weeks hence children will set forth a-maying and have indifferent luck; but

[1] Possibly the very first alder and white maple open to-day. *Vide* 19th and 20th.

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the first sunny and warmer day in March the honey-[bee] comes forth, stretches its wings, and goes forth in search of the earliest flower.

The curled dock has grown the most of any plant I have noticed yet. It had begun the 2d.

Turning over a log, I see a fishworm out, and plenty of sow-bugs running about, and ant-like creatures, also a wireworm. Black spiders are more numerous than before, and it must be they that have shot these webs of late on all the stubble and bushes.

You see a fly come forth from its hibernaculum in your yard, stretch its wings in the sun, and set forth on its flowery journey. You little think that it knows the locality of early flowers better than you. You have not dreamed of them yet. It knows a spot a mile off under a warm bank-side where the skunk-cabbage is in bloom. No doubt this flower, too, has learned to expect its winged visitor knocking at its door in the spring. The bee sees their low roofs in the brown and springy ground.

It is very warm on the sandy slopes of Clamshell now. The buzzing fly describes an unseen arc in that calm air, reminding us of far-off sultry heats to come. A brown cicindela (green beneath) runs on the sand. I see a brown grasshopper, also a green one, each about three quarters of an inch long, *hop* at a ditch.

C. picks up at Clamshell a very thin piece of pottery about one eighth of an inch thick, which appears to contain much pounded shell.

See middling-sized frogs at Hosmer's early ditch, brown above, whitish beneath. Are they not *Rana*

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fontinalis? — though neither green nor yellow. Also a great many similar-colored small ones, which may be male sylvaticas.

Callitriche has decidedly started.

I see that simplest form shell snail of the water copulating.

We sit on the withered sedge, on a warm and sheltered hillside, in the sprout-land toward J. P. B.'s Cold Pool, and observe the hazel catkins around us already very much loosened and elongated. No doubt, this being the fourth of these warm days, they began to be so on the 15th. As I sit there, I notice on a bush four feet off, between me and the sun, the little fiery-crimson stars where the stigmas have just begun to peep (one thirtieth of an inch), minute points of crimson not half so big as the head of a pin, yet making a large impression, they so fill your imagination.

Pratt says that his bees come out in a pleasant day at any time in the winter; that of late they have come out and eased themselves, the ground being covered around the hives with their yellow droppings. Were not these the little yellow pellets I saw in a skunk-cabbage flower some years ago?[1] He says they come home now all yellow. I tell him it is skunk-cabbage pollen. I think there would be no surer way to tell when this flower had bloomed than to keep bees and watch when they first returned laden with pollen. Let them search for you, — a swarm of bees. Probably with a microscope you could tell exactly when each of the bee-frequented flowers began to bloom throughout the year.

[1] No, for Farmer says the former are liquid.

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The elm buds are expanded, partly opened.

The first day in March when, the ground being bare, the temperature rises to 58° and the weather is clear and calm is a memorable one. Is it not commonly a bluebird day?

On the 16th, going behind Flint's, the water on the meadow quite low, I observed that portions were *clear* water, — it being calm, — while in other parts the stubble of the sedge rose just above the surface, and this sedge was seen thus to grow in rounded patches with a regular curved edge. The water being just at this height, you could easily see the boundary of a particular kind of sedge. I think that many kinds of sedge spread in this manner.

The sweet-fern grows in large, dense, more or less rounded or oval patches in dry land. You will see three or four such patches in a single old field. It is now quite perfect in my old bean-field.

March 19. Early willows in their silvery state.

2 P. M. — Thermometer 51; wind easterly, blowing slightly. To Everett's Spring.

Going along the Turnpike, I look over to the pitch pines on Moore's hillside, — ground bare as it has been since February 23, except a slight whitening or two, — and it strikes me that this pine, take the year round, is the most cheerful tree and most living to look at and have about your house, it is so sunny and full of light, in harmony with the yellow sand there and the spring sun. The deciduous trees are apparently dead, and the white pine is much darker, but the pitch pine has an ingrained

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sunniness and is especially valuable for imparting warmth to the landscape at this season. Yet men will take pains to cut down these trees and set imported larches in their places! The pitch pine shines in the spring somewhat as the osiers do.

I see in the ditch by the Turnpike bridge a painted tortoise, and, I think, a small shiner or two, also several suckers which swiftly dart out of sight, rippling the water. We rejoice to see the waters inhabited again, for a fish has become almost incredible.

Myriads of water-bugs of various sizes are now gyrating, and they reflect the sun like silver. Why do they cast a *double* orbicular shadow on the bottom?

I see some monstrous yellow lily roots in the ditch there just beyond the bridge on the right hand, — great branching roots, three or four of them from one base, two feet long (or more) and as big as my arm, all covered with muddy sediment. I know of no herbaceous plant which suggests so much vigor. They taper at the extremity, down (or up) to the green leaf-bud, and, regularly marked as they are with the bases of the leaf-stalks, they look like pineapples there.

Holding by an alder, I get my hand covered with those whitish lice, which I suppose will cover themselves with down.

The *Rana halecina* sits on the bank there.

The *Alnus incana* is out,[1] near Everett's Spring, but

[1] Probably yesterday in some places.

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not the *Alnus serrulata*, *i. e.* the smaller one, which grows south of scouring-rush.

The plants which have grown the most there — and they are very conspicuous now — are the forget-me-not, the *Ranunculus repens* (much more than any *bulbosus*),

and a common sedge which already begins to yellow the top of some tussocks.[1]

The lower part of the hill at Minott's is decidedly green now.

The road and paths are perfectly dry and settled in the village, except a very little frost still coming out on the south side the street.

March 20. Worm-piles in dooryard this morning.

A foggy morning; turns to some April-like rain, after east wind of yesterday.

A. Buttrick says he saw and heard woodcocks the 5th of March this year, or much earlier than ever before. Thinks they are now laying. His dog put them up at the brushy point below Flint's, — one pair there. Is another pair at Hunt's Pond, another at Eleazer Davis's Hill. He says that he caught three skunks and a crow last week in his traps baited with muskrat for mink. Says a fox will kill a skunk and eat him greedily before he smells, but nothing will eat a mink.

2 P. M. — Thermometer about 49.

This is a slight, dripping, truly April-like rain. You hardly know whether to open your umbrella or not. More mist than rain; no wind, and the water perfectly

[1] Just fairly begun at Heywood meadow the 25th.

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smooth and dark, but ever and anon the cloud or mist thickens and darkens on one side, and there is a sudden rush of warm rain, which will start the grass. I stand on Hunt's Bridge and, looking up-stream, see now first, in this April rain, the water being only rippled by the current, those alternate dark and light patches on the surface, all alike dimpled with the falling drops. (The ground now soaks up the rain as it falls, the frost being pretty commonly out.) It reminds me of the season when you sit under a bridge and watch the dimples made by the rain.

I see where some one has lately killed a striped snake.

The white maple by the bridge is abundantly out, and of course did not open this rainy day. Yesterday, at least, it began.

I observed on the 18th a swarm of those larger tipulidæ, or fuzzy gnats, dancing in a warm sprout-land, about three feet above a very large white pine stump which had been sawed off quite smoothly and was conspicuous. They kept up their dance directly over this, only swaying to and fro slightly, but always recovering their position over it. This afternoon, in the sprinkling rain, I see a very small swarm of the same kind dancing in like manner in a garden, only a foot above the ground but directly over a bright tin dish, — apparently a mustard-box, — and I suspect that they select some such conspicuous fixed point on the ground over which to hover and by which to keep their place, finding it for their convenience to keep the same place. These gyrate in the air as water-bugs on the water.[1]

[1] For same, *vide* March 10, 1859.

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Methinks this gentle rainy day reminds me more of summer than the warmest fair day would.

A. Buttrick said to-day that the black ducks come when the grass begins to grow in the meadows, *i. e.* in the water.

Perhaps calm weather and thermometer at about 50, the frost being commonly out and ground bare, may be called an April-like rain.

The 15th, 16th, 17th, 18th, and 19th were very pleasant and warm days, the thermometer standing at 50°, 55°, 56°, 56°, and 51° (average 53½°), — quite a spell of warm weather (succeeding to cold and blustering), in which the alders and white maples, as well as many more skunk-cabbages, bloomed, and the hazel catkins became relaxed and elongated.

A. Buttrick says he has seen ground squirrels some time. I hear that the first alewives have been caught in the Acushnet River.

Our own mistakes often reveal to us the true colors of objects better than a conscious discrimination. Coming up the street the other afternoon, I thought at first that I saw a smoke in Mr. Cheney's garden. It was his white tool-house.

March 21. Colder and overcast. Did not look at thermometer; probably not far from 40°.

March 22. Colder yet, and a whitening of snow, some of it in the form of pellets, — like my pellet frost! — but melts about as fast as it falls. At 4 P. M., 28; probably about 30 at 2 P. M.

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Fair Haven Pond was seen entirely open the 20th. (I saw it the 15th, and thought it would open in four or five days; the channel was not then open.) Say, then, 20th. Channel open, say 17th.

The phenomena of an average March are increasing warmth, melting the snow and ice and, gradually, the frost in the ground; cold and blustering weather, with high, commonly northwest winds for many days together; misty and other rains taking out frost, and whitenings of snow, and winter often back again, both its cold and snow; bare ground and open waters, and more or less of a freshet; some calm and pleasant days reminding us of summer, with a blue haze or a thicker mist wreathing the woods at last, in which, perchance, we take off our coats awhile and sit without a fire a day; ways getting settled, and some greenness appearing on south bank; April-like rains, after the frost is chiefly out; plowing and planting of peas, etc., just beginning, and the old leaves getting dry in the woods.

Vegetation fairly begins, — conferva and mosses, grass and carex, etc., — and gradually many early herbaceous plants start, and noticed radical leaves; *Stellaria media* and shepherd's-purse bloom; maple and buttonwood sap (6th) flow; spiræas start, cladonias flush, and bæomyces handsome; willow catkins become silvery, aspens downy; osiers, etc., look bright, white maple and elm buds expand and open, oak woods thin-leaved; alder and hazel catkins become relaxed and elongated. First perceptible greenness on south banks, 22d. The skunk-cabbage begins to bloom (23d); plant peas, etc., 26th; spring rye, wheat, lettuce; maple

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swamps red-tinged (?) 28th, and lake grass; and perchance the gooseberry and lilac begin to show a little green. That is, *one indigenous native flower* blooms. (*Vide* if the early sedge does.)

About twenty-nine migratory birds arrive (including hawks and crows), and two or three more utter their spring notes and sounds, as nuthatch and chickadee, turkeys, and woodpecker tapping, while apparently the snow bunting, lesser redpoll, shrike, and doubtless several more — as owls, crossbills (?) — leave us, and woodcocks and hawks begin to lay.

Many insects and worms come forth and are active, — and the perla insects still about ice and water, — as tipula, grubs, and fuzzy caterpillars, minute hoppers on grass at springs; gnats, large and small, dance in air; the common and the green fly buzz outdoors; the gyrinus, large and small, on brooks, etc., and skaters; spiders shoot their webs, and at last gossamer floats; the honey-bee visits the skunk-cabbage; fishworms come up, sow-bugs, wireworms, etc.; various larvæ are seen in pools; small green and also brown grasshoppers begin to hop, small ants to stir (25th); *Vanessa Antiopa* out 29th; cicindelas run on sand; and small reddish butterflies are seen in wood-paths, etc., etc., etc.

Skunks are active and frolic; woodchucks and ground squirrels come forth; moles root; musquash are commonly drowned out and shot, and sometimes erect a new house, and at length are smelled; and foxes have young (?).

As for fishes, etc., trout glance in the brooks, brook minnows are seen; see furrows on sandy bottoms, and

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small shell snails copulate; dead suckers, etc., are seen floating on meadows; pickerel and perch are running up brooks, and suckers (24th) and pickerel begin to dart in shallows.

And for reptiles, not only salamanders and polly-wogs are more commonly seen, and also those little frogs (*sylvatica* males?) at spring-holes and ditches, the yellow-spot turtle and wood turtle, *Rana fontinalis*, and painted tortoise come forth, and the *Rana sylvatica* croaks.

Our river opened in 1851, much before February 25; 1852, March 14 at least; 1853, say March 8 at least; 1854, say March 9; average March 5. Hudson River opened, according to Patent Office Reports, 1854, page 435: 1851, February 25; 1852, March 28; 1853, March 23; 1854, March 17; average March 16. According to which our river opens some eleven days the soonest. Perhaps this is owing partly to the fact that our river is nearer the ocean and that it rises southward instead of northward.

March 23. 2 P. M. — 40°; rather windy. Small dark-based cumuli spring clouds, mostly in rows parallel with the horizon.

I see one field which was plowed before the 18th and spring rye sowed. The earlier the better, they say. Some fields might have been plowed earlier, but the ground was too wet. Farmer says that some fifty years ago he plowed and sowed wheat in January, and never had so good a crop.

I hear that Coombs has killed half a dozen ducks,

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one of them a large gray duck in Goose Pond. He tells me it weighed five and a half pounds, — while his black ducks weigh only three and a half, — and was larger than a sheldrake and very good to eat. Simply gray, and was alone, and had a broad flat bill. Was it the gadwall? or a kind of goose?

It will be seen by the annexed scrap[1] that March is the fourth coldest month, or about midway between December and November. The same appears from the fifteen years' observation at Mendon. ("American Almanac," page 86.) The descent to extreme cold occupies seven months and is therefore more gradual (though a part of it is more rapid) than the ascent to extreme heat, which takes only five months. The mean average temperature of the coldest month (February) being 23.25, and of the warmest (July) being 72.35, the whole ascent from extreme cold to extreme heat is 49.10°, and in March (32.73) we have accomplished 8.48°, or a little less than one sixth the ascent. (According to the Mendon fifteen years' average the whole ascent is 47.5, and in March we have advanced 9.2, a little more than one fifth.) It appears (from the scrap) that December, January, and February, the three winter months, differ very little in temperature, and the three summer months and September are next most alike, though they differ considerably more. (Same from Mendon tables.) The greatest or abruptest change is from November to December (in Mendon tables from September to October), the next most abrupt from

[1] [Tables from the Patent Office Reports, 1853, p. 332; 1854, p. 427; 1855, p. 375.]

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April to May (in Mendon tables from March to April). The least change (according to the above tables) is from December to January. (According to Mendon tables, the same from December to January as from January to February.) The three spring months, and also October and November, are transition months, in which the temperature rapidly changes.

March 24. Cold and rather blustering again, with flurries of snow.

The boatman, when the chain of his boat has been broken with a stone by some scamp, and he cannot easily transport his boat to the blacksmith's to have it mended, gets the latter to bend him a very stout iron wire in the form of an S, then, hooking this to the two broken ends and setting it upright on a rock, he hammers it down till it rests on itself in the form of an 8, which is very difficult to pry open.

2 P. M. — About 39. To Copan.

I see a male frog hawk beating a hedge, scarcely rising more than two feet from the ground for half a mile, quite below the level of the wall within it. How unlike the hen-hawk in this!

They are real wind-clouds this afternoon; have an *electric*, fibry [*sic*] look. Sometimes it is a flurry of snow falling, no doubt. Peculiar cold and windy cumuli are mixed with them, not black like a thunder-cloud, but cold dark slate with very bright white crowns and prominences.

I find on Indian ground, as to-day on the Great Fields, very regular oval stones like large pebbles,

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sometimes five or six inches long, water-worn, of course, and brought hither by the Indians. They commonly show marks of having been used as hammers. Often in fields where there is not a stone of that kind in place for a mile or more.

From Holbrook's clearing I see five large dark-colored ducks, probably black ducks, far away on the meadow, with heads erect, necks stretched, on the alert, only one in water. Indeed, there is very little water on the meadows. For length of neck those most wary look much like geese. They appear quite large and heavy. They probably find some sweet grass, etc., where the water has just receded.

There are half a dozen gulls on the water near. They are the large *white* birds of the meadow, the whitest we have. As they so commonly stand above water on a piece of meadow, they are so much the more conspicuous. They are *very* conspicuous to my naked eye a mile off, or as soon as I come in sight of the meadow, but I do not detect the sheldrakes around them till I use my glass, for the latter are not only less conspicuously white, but, as they are fishing, sink very low in the water. Three of the gulls stand together on a piece of meadow, and two or three more are standing solitary half immersed, and now and then one or two circle slowly about their companions.

The sheldrakes appear to be the most native to the river, briskly moving along up and down the side of the stream or the meadow, three-fourths immersed and with heads under water, like cutters collecting the revenue of the river bays, or like pirate crafts peculiar to

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the stream. They come the earliest and seem to be most at home.

The water is so low that all these birds are collected near the Holt. The inhabitants of the village, poultry-fanciers, perchance, though they be, [know not] these active and vigorous wild fowl (the sheldrakes) pursuing their finny prey ceaselessly within a mile of them, in March and April. Probably from the hen-yard fence with a good glass you can see them at it. They are as much at home on the water as the pickerel is within it. Their serrated bill reminds me of a pickerel's snout. You see a long row of these schooners, black above with a white stripe beneath, rapidly gliding along, and occasionally one rises erect on the surface and flaps its wings, showing its white lower parts. They are the duck most common and most identified with the stream at this season. They appear to get their food wholly within the water. Less like our domestic ducks.

I saw two red squirrels in an apple tree, which were rather small, had simply the tops of their backs red and the sides and beneath gray!

Fox-colored sparrows go flitting past with a faint, sharp chip, amid some oaks.

According to a table in the "American Almanac" for '49, page 84, made at Cambridge, from May, '47, to May, '48, the monthly mean force of the wind for the twelve months (I putting January, February, March, and April, '48, before May, etc., of '47), numbering them 1, 2, 3, etc., from the highest force downward, was —

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1848				1847							
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6	5	3	3	3	2	1	4	4	6	5	4
For quantity of clouds, they stood —											
4	9	7	10	7	5	8	6	3	11	2	1
For depth of rain in inches, —											
7	6	9	12	10	2	8	3	1	11	4	5

That is, for force of wind, March, April, and May were equal, and were inferior to July and June; for quantity of clouds March and May were equal, and were preceded by December, November, September, January, June, and August. For depth of rain, September stood first, and March ninth, succeeded only by May, October, and April. The wind's force was observed at sunrise, 9 A. M., 3 P. M., and 9 P. M., and in March the greatest force was at 3 P. M., the least at 9 P. M. So, for the whole year the greatest force was at 3 P. M., but the least at sunrise and 9 P. M. both alike. The clouds were observed at the same time, and in March there was the greatest quantity at 9 P. M. and the least at sunrise, but for the year the greatest quantity at 3 P. M. and the least at sunrise and 9 A. M. alike.

At Mendon, Mass., for the whole year 1847 alone (*i. e.* a different January, February, March, and April from the last) it stood, for force of wind, —

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
3	5	3	1	4	1	3	2	3	2	3	3
For clouds											
5	1	6	8	7	9	11	8	3	10	4	2

According to which, for force of wind, March, July, September, November, and December were equal, and

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were inferior to April, June, August, and October; and for clouds March was sixth. The wind's force for March was greatest at 9 A.M. and 3 P. M., which were equal; but for the year greatest at 9 A. M. and least at sunrise. For March there was the greatest quantity of clouds at 9 A. M., but for the year at both sunrise and 9 A. M.

In the last table eight points of the wind were noticed, *viz.* northwest, north, northeast, east, southeast, south, southwest, west. During the year the wind was southwest 130 days, northwest 87, northeast 59, south 33, west 29, east 14, southeast 10, north 3 days. In March it was northwest 9 days, southwest 8, northeast 5, south 4, west 3, north 2.

March 25. Cold and blustering.

2 P. M. — 35°. To Well Meadow and Walden.

See first cloud of dust in street.

One early willow on railroad, near cowcatcher, just sheds pollen from one anther, but probably might find another more forward.

I notice on hillside in Stow's wood-lot on the west of the Cut what looks like a rope or hollow semicylinder of sawdust around a large white pine stump, just over its instep. There are two or three mouse-holes between the prongs, and the mice have evidently had a gallery through this dust. Much of it is very coarse and fibry [*sic*],—fibres of wood an inch or more long mixed with finer. This is probably the work of the mice in the winter on the roots below, making rooms for themselves. Some of the fine dust is formed into a pellet a quarter of an inch wide and

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flat, of a regular form, half as thick as wide. If not so large you might think they had passed through the creature. The ring of this dust or chewings is not more than two inches wide, and yet it is a hollow semicylinder, more or less regular. I think that I can explain it thus: The mice — of course deer mice — had a gallery in the snow around the stump, from hole to hole. When they began to gnaw away the stump underground they brought up their gnawings, and, of course, had no place to cast them but in the gallery through which they ran. Can it be that they eat any of this wood? The gnawings and dust were abundant and fresh, while that made by worms under the bark was old and dirty and could not have been washed into this position, though some of it might have been made by worms beneath the ground.

At Well Meadow I notice, as usual, that the common cress has been eaten down close, and the uncertain coarse sedge there, etc. The skunk-cabbage leaf-buds have just begun to appear, but not yet any hellebore. The senecio is considerably grown, and I see many little purplish rosettes of *Viola pedata* leaves in sandy paths well grown. One *Caltha palustris* flower, just on the surface of the water, is perfectly out.[1]

See no ducks on Fair Haven Pond, but, sailing over it and at length hovering very long in one place with head stretched downward, a fish hawk.

It is hard descending steep north hillsides as yet, because the ground is yet frozen there and you cannot get a hold by sinking your heels into it.

[1] None out at Second Division Brook the next day, or 26th.

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The grass is dense and green as ever, and the caltha blooms in sheltered springy places, being protected from frosts in the night, probably, by a vapor arising from the warm water.

Though the meadow flood is low, methinks they [the meadows] must be covered with a sweet grass which has lately grown under water (parts of them at least), so much the more accessible to such ducks as feed on shore. Probably many ducks as well as geese do feed on shore in the night.

Windy as it is, you get along comfortably enough in the woods, and see the chill-lills and cinnamon sparrows flitting along from bush to bush. Methought on the 18th, a warm day, that the chill-lills and tree sparrows haunted rather the shaded and yet snowy hollows in the woods. The deep [*sic*] some thirty rods behind where I used to live is mostly covered with ice yet, but no doubt such are generally open now, — Ripple Lake, for example.

To speak of the general phenomena of March: When March arrives, a tolerably calm, clear, sunny, spring-like day, the snow is so far gone that sleighing ends and our compassion is excited by the sight of horses laboriously dragging wheeled vehicles through mud and water and slosh. We shall no longer hear the jingling of sleigh-bells. The sleigh is housed, or, perchance, converted into a wheeled vehicle by the travelling peddler caught far from home. The wood-sled is perhaps abandoned by the roadside, where the snow ended, with two sticks put under its runners, — there to rest, it may be, while

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the grass springs up green around it, till another winter comes round. It may be near where the wagon of the careless farmer was left last December on account of the drifted snow. As March approaches, at least, peddlers will do well to travel with wheels slung under their sleighs, ready to convert their sleighs into wheeled vehicles at an hour's warning. Even the boy's sled gets put away by degrees, or when it is found to be in the way, and his thoughts are directed gradually to more earthy games. There are now water privileges for him by every roadside.

The prudent farmer has teamed home, or to market, his last load of wood from the lot, nor left that which was corded a year ago to be consumed by the worms and the weather. He will not have to sell next winter oak wood rotted an inch deep all round, at a reduction in the price if he deals with knowing customers. He has hauled his last logs to mill. No more shall we see the sled-track shine or hear the sled squeak along it.

The boy's sled gets put away in the barn or shed or garret, and there lies dormant all summer, like a woodchuck in the winter. It goes into its burrow just before woodchucks come out, so that you may say a woodchuck never sees a sled, nor a sled a woodchuck, — unless it were a prematurely risen woodchuck or a belated and unseasonable sled. Before the woodchuck comes out the sled goes in. They dwell at the antipodes of each other. Before sleds rise woodchucks have set. The ground squirrel too shares the privileges and misfortunes of the woodchuck. The sun now passes from the constellation of the sled into that of the woodchuck.

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The snow-plow, too, has now nothing more to do but to dry-rot against another winter, like a thing whose use is forgotten, incredible to the beholder, its vocation gone.

I often meet with the wood-sled by the path, carefully set up on two sticks and with a chip under the cop to prevent its getting set, as if the woodman had waited only for another snow-storm to start it again, little thinking that he had had his allowance for the year. And there it rests, like many a human enterprise postponed, sunk further than he thought into the earth after all, its runners, by which it was to slide along so glibly, rotting and its ironwork rusting. You question if it will ever start again.

If we must stop, says the schemer, leave the enterprise so that we can start again under the best possible circumstances. But a scheme at rest begins at once to rust and rot, though there may be two sticks under the runner and a chip under the cop. The ineradicable [?] grass will bury it, and when you hitch your forces to it a year hence it is a chance if it has not lost its cohesion. Examine such a scheme, and see if it rests on two sticks and can be started again. Examine also its joints, and see if it will cohere when it is started.

You can easily find sticks and chips, but who shall find snow to put under it? There it slumbers, sinking into the ground, willingly returning to the earth from which it came. Mortises and tenons and pins avail not to withhold it.

All things decay,
And so must our sleigh.

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The sleighing, the sledding, or sliding, is gone. We now begin to wheel or roll ourselves and commodities along, which requires more tractile power. The ponderous cart and the spruce buggy appear from out their *latebræ* like the dusty flies that have wintered in a crevice, and we hear the buzzing of their wheels. The high-set chaise, the lumbering coach like wasps and gnats and bees come humming forth.

The runners have cut through to the earth; they go in search of the snow into the very gutters, or invade the territory of the foot-passenger. The traveller, when he returns the hired horse to his stable, concludes at last that it is worse sleighing than wheeling. To be sure, there was one reach where he slid along pretty well under the north side of a wood, but for the most part he cut through, as when the cook cuts edgings of dough for her pies, and the grating on the gravel set his teeth on edge.

You see where the teamster threw off two thirds his load by the roadside, and wonder when he will come back for it.

Last summer I walked behind a team which was ascending the Colburn Hill, which was all dripping with melting ice, used to cool the butter which it held. In January, perchance I walk up the same hill behind a sled-load of frozen deer between snow-drifts six feet high.

To proceed with March: Frost comes out of warm sand-banks exposed to the sun, and the sand flows down in the form of foliage. But I see still adhering to

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the bridges the great chandelier icicles formed in yesterday's cold and windy weather.

By the 2d, ice suddenly softens and skating ends. This warmer and springlike day, the inexperienced eagerly revisit the pond where yesterday they found hard and glassy ice, and are surprised and disappointed to find it soft and rotten. Their aching legs are soon satisfied with such sport. Yet I have in such a case found a strip of good skating still under the north side of a hill or wood. I was the more pleased because I had foreseen it.[1] Skates, then, have become useless tools and follow sleds to their winter quarters. They are ungratefully parted with, not like old friends surely. They and the thoughts of them are shuffled out of the way, and you will probably have to hunt long before you find them next December.

It is too late to get ice for ice-houses, and now, if I am not mistaken, you cease *to notice* the green ice at sunset and the rosy snow, the air being warmer and softer. Yet the marks and creases and shadings and bubbles, etc., in the rotting ice are still very interesting.

If you walk under cliffs you see where the melted snow which trickled down and dripped from their perpendicular walls has frozen into huge organ-pipe icicles.

The water going down, you notice, perchance, where the meadow-crust has been raised and floated off by the superincumbent ice, *i. e.*, if the water has been high in the winter, — often successive layers of ice and meadow-crust several feet in thickness. The most

[1] *Vide* skating at Quinsigamond, Feb., 1859.

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sudden and greatest revolution in the condition of the earth's surface, perhaps, that ever takes place in this town.

The air is springlike. The milkman closes his ice-house doors against the milder air.

By the 3d, the snow-banks are softened through to earth. Perchance the frost is out beneath in some places, and so it melts from below upward and you hear it sink as it melts around you as you walk over it. It is soft, saturated with water, and glowing white.

The 4th is very wet and dirty walking; melted snow fills the gutters, and as you ascend the hills, you see bright braided streams of it rippling down in the ruts. It glances and shines like burnished silver. If you walk to sandy cliffs you see where new ravines have formed and are forming. An east wind to-day, and maybe brings rain on —

The 5th, a cold mizzling rain, and, the temperature falling below zero [*sic*], it forms a thin glaze on your coat, the last glaze of the year.

The 6th, it clears off cold and windy. The snow is chiefly gone; the brown season begins. The tawny frozen earth looks drier than it is. The thin herd's- or piper-grass that was not cut last summer is seen all slanting southeast, as the prevailing wind bent it before the snow came, and now it has partly sprung up again. The bleached grass white.

The 7th is a day of misty rain and mistling, and of moist brown earth into which you slump as far as it is thawed at every step. Every now and then the mist thickens and the rain drives in upon you from one side.

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Now you admire the various brown colors of the parded earth, the plump cladonias, etc., etc. Perchance you notice the bæomyces in fruit and the great chocolate-colored puffball still losing its dust, and, on bare sandy places, the *Lycoperdon stellatum*, and then your thoughts are directed to arrowheads and you gather the first Indian relics for the season. The open spaces in the river are now long reaches, and the ice between is mackerelled, and you no longer think of crossing it except at the broadest bay. It is, perhaps, lifted up by the melted snow and the rain.

The 8th, it is clear again, but a very cold and blustering day, yet the wind is worse than the cold. You calculate your walk beforehand so as to take advantage of the shelter of hills and woods; a very slight elevation is often a perfect fence. If you must go forth facing the wind, bending to the blast, and sometimes scarcely making any progress, you study how you may return with it on your back. Perchance it is suddenly cold, water frozen in your chamber, and plants even in the house; the strong draft consumes your fuel rapidly, though you have but little left. You have had no colder walk in the winter. So rapidly is the earth dried that this day or the next perhaps you see a cloud of dust blown over the fields in a sudden gust.

The 9th, it is quite warm, with a southwest wind. The first lightning is seen in the horizon by one who is out in the evening. It is a dark night.

The 10th, you first notice frost on the tawny grass. The river-channel is open, and you see great white cakes going down the stream between the still icy

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meadows, and the wind blows strong from the northwest, as usual. The earth begins to look drier and is whiter or paler-brown than ever, dried by the wind. The very russet oak leaves mixed with pines on distant hills look drier too.

The 11th is a warmer day and fair, with the first considerable bluish haze in the air. It reminds you of the azure of the bluebird, which you hear, which perhaps you had only *heard of* before.

The morning of the 12th begins with a snow-storm, snowing as seriously and hard as if it were going to last a week and be as memorable as the Great Snow of 1760, and you forget the haze of yesterday and the bluebird. It tries hard but only succeeds to whiten the ground, and when I go forth at 2 P. M. the earth is bare again. It is much cooler and more windy than yesterday, but springlike and full of life. It is, however, warm in the sun, and the leaves already dry enough to sit on. Walden is melted on the edge on the northerly side. As I walk I am excited by the living dark-blue color of the open river and the meadow flood (?) seen at a distance over the fields, contrasting with the tawny earth and the patches of snow. In the high winds in February, at open reaches in the river it was positively angry and black; now it is a cold, dark blue, like an artery. The storm is not yet over. The night sets in dark and rainy, — the first considerable rain, taking out the frost. I am pleased to hear the sound of it against the windows, for that copious rain which made the winter of the Greeks and Romans is the herald of summer to us.

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The 13th, the ways are getting settled in our sandy village. The river is rising fast. I sit under some sheltering promontory and watch the gusts ripple the meadow flood.

14th. This morning it snows again, and this time it succeeds better, is a real snow-storm, — by 2 o'clock, three or four inches deep, — and winter is fairly back again. The early birds are driven back or many of them killed. The river flood is at its height, looking dark amid the snow.

15th. The ice is all out of the river proper and the meadow, except ground ice or such as lies still at the bottom of the meadow, under water.

16th. The ice of the night fills the river in the morning, and I hear it go grating downward at sunrise. As soon as I can get it painted and dried, I launch my boat and make my first voyage for the year up or down the stream, on that element from which I have been debarred for three months and a half. I taste a spring cranberry, save a floating rail, feel the element fluctuate beneath me, and am tossed bodily as I am in thought and sentiment. Than longen folk to gon on *voyages*. The water freezes on the oars. I wish to hear my mast crack and see my rapt [?] boat run on her side, so low her deck drinks water and her keel plows air. My only competitors or fellow-voyagers are the musquash-hunters. To see a dead sucker washing on the meadows! The ice has broken up and navigation commenced. We may set sail for foreign parts or expect the first arrival any day. To see the phenomena of the water and see the earth from the *water side*, to stand outside of it on

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another element, and so get a pry on it in thought at least, that is no small advantage. I make more boisterous and stormy voyages now than at any season. Every musquash-shooter has got his boat out ere this. Some improvident fellows have left them out, or let them freeze in, and now find them in a leaking condition. But the solid ice of Fair Haven as yet bars all progress in that direction. I vastly increase my sphere and experience by a boat.

17th. The last night, perhaps, we experience the first wind of the spring that shakes the house. Some who sleep in attics expect no less than that the roof will be taken off. They calculate what chance there is for the wind to take hold of the overlapping roof or eaves. You hear that your neighbor's chimney is blown down. The street is strewn with rotten limbs, and you notice here and there a prostrate pine on the hills. The frozen sidewalks melt each morning. When you go to walk in the afternoon, though the wind is gone down very much, you watch from some hilltop the light flashing across some waving white pines. The whole forest is waving like a feather in the wind. Though the snow is gone again here, the mountains are seen to be still covered, and have been ever since the winter. With a spy-glass I can look into such a winter there as it seems to me I have only read of. No wonder the northwest wind is so cold that blows from them to us.

18th. A warm day. I perceive, on some warm wooded hillsides half open to the sun, the dry scent of the withered leaves, gathered in piles here and there by the wind. They make dry beds to recline on, and

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remind me of fires in the woods that may be expected ere long.

The 19th, say 56 or 60 and *calm*, is yet warmer, a really warm day. Perhaps I wear but one coat in my walk, or sweat in two. The genial warmth is the universal topic. Gnats hum; the early birds warble. Especially the calmness of the day is admirable. The wind is taking a short respite, locked up in its cave somewhere. We admire the smoothness of the water, the shimmering over the land. All vegetation feels the influence of the season. Many first go forth to walk and sit outdoors awhile. The river falling, I notice the coarse wrack left along the shore, dotted with the scarlet spring cranberries. Before night a sudden shower, and some hear thunder, a single low rumble.

The 21st is warm too by the thermometer, but more windy.

The 23d, a channel is worn through Fair Haven Pond.

24th. The winds are let out of their cave, and have fairly resumed their sway again, with occasional flurries of snow which scarcely reach the earth. Gusty electric clouds appear here and there in the sky, like charges of cavalry on a field of battle. It is icy cold, too, and you need all your winter coats at least. The fresh spray, dashed against the alders and willows, makes rake and horn icicles along the causeways.

25th. Colder yet. Considerable ice forms. The river skims over along the side. The river is down again, lower than any time this month.

26th. Warm again. The frost is at length quite out

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of early gardens. A few begin to plow, and plant peas and rye, etc. In the afternoon a thick haze conceals the mountains and wreathes the woods, the wind going east.

27th. Steady, pattering, April-like rain, dimpling the water, foretold by the thick haze of yesterday, and soaked up by the ground for the most part, the frost being so much out.

28th. Some sit without a fire in afternoon, it is so warm. I study the honeycombed black ice of Fair Haven Pond.

29th. See a pellet frost in the morning, — or snow. Fair Haven Pond is open.

30th. You see smokes rising above the woods in the horizon this dry day, and know not if it be burning brush or an accidental fire.

31st. The highways begin to be dusty, and even our minds; some of the dusty routine of summer even begins to invade them. A few heels of snow may yet be discovered, or even seen from the window.

March 26. A pleasant day.

I think I heard the last lesser redpolls near the beginning of this month; say about 7th.

The top of a white maple swamp had a reddish tinge at a distance day before yesterday. Was it owing to any expansion of the buds?

2 P. M. — Thermometer 4 [*sic*]. To Second Division Brook.

Though there is very considerable greenness on the warmest southerly banks, there is no change perceptible in the aspect of the earth's surface generally, or at a

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little distance. It is as bare and dead a brown as ever. When the sun comes out of a cold slate-colored cloud, these windy days, the bleached and withered pastures reflect its light so brightly that they are almost white. They are a pale tawny, or say fawn-color, without any redness. The brown season extends from about the 6th of March ordinarily into April. The first part of it, when the frost is rapidly coming out and transient snows are melting, the surface of the earth is saturated with moisture. The latter part is dry, the whitish-tawny pastures being parded with brown and green mosses (that commonest one) and pale-brown lecheas, which mottle it very pleasingly. This dry whitish-tawny or drab color of the fields — withered grass lit by the sun — is the color of a teamster's coat. It is one of the most interesting effects of light now, when the sun, coming out of clouds, shines brightly on it. It is the *fore*-glow of the year. There is certainly a singular propriety in that color for the coat of a farmer or teamster or shepherd or hunter, who is required to be much abroad in our landscape at this season. It is in harmony with nature, and you are less conspicuous in the fields and can get nearer to wild animals for it. For this reason I am the better satisfied with the color of my hat, a drab, than with that of my companion, which is black, though his coat is of the exact tint and better than mine; but again my dusty boots harmonize better with the landscape than his black and glossy india-rubbers.

I had a suit once in which, methinks, I could glide across the fields unperceived half a mile in front of a farmer's windows. It was such a skillful mixture of

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browns, dark and light properly proportioned, with even some threads of green in it by chance. It was of loose texture and about the color of a pasture with patches of withered sweet-fern and lechea. I trusted a good deal to my invisibility in it when going across lots, and many a time I was aware that to it I owed the near approach of wild animals.

No doubt my dusty and tawny cowhides surprise the street walkers who wear patent-leather or Congress shoes, but they do not consider how absurd such shoes would be in my vocation, to thread the woods and swamps in. Why should I wear *Congress* who walk alone, and not where there is any congress of my kind?

C. was saying, properly enough, the other day, as we were making our way through a dense patch of shrub oak: "I suppose that those villagers think that we wear these old and worn hats with holes all along the corners for oddity, but Coombs, the musquash hunter and partridge and rabbit snarer, knows better. He understands us. He knows that a new and square-cornered hat would be spoiled in one excursion through the shrub oaks."

The walker and naturalist does not wear a hat, or a shoe, or a coat, to be looked at, but for other uses. When a citizen comes to take a walk with me I commonly find that he is lame, — disabled by his shoeing. He is sure to wet his feet, tear his coat, and jam his hat, and the superior qualities of my boots, coat, and hat appear. I once went into the woods with a party for a fortnight. I wore my old and common clothes, which were of Vermont gray. They wore, no doubt, the best they had for such an occasion, — of a fashionable color and qual-

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ity. I thought that they were a little ashamed of me while we were in the towns. They all tore their clothes badly but myself, and I, who, it chanced, was the only one provided with needles and thread, enabled them to mend them. When we came out of the woods I was the best dressed of any of them.

One of the most interesting sights this afternoon is the color of the yellow sand in the sun at the bottom of Nut Meadow and Second Division Brooks. The yellow sands of a lonely brook seen through the rippling water, with the shadows of the ripples like films passing over it.

By degrees you pass from heaven to earth up the trunk of the white pine. See the flash of its boughs reflecting the sun, each light or sunny above and shaded beneath, even like the clouds with their dark bases, a sort of mackerel sky of pine boughs.

The woodchoppers are still in the woods in some places, splitting and piling at least.

I hear that mayflowers brought from Fitchburg last Thursday (22d) have blossomed *here*. They are evidently much earlier than any of ours. Ours at Second Division (first lot) are under the icy snow.

The rare juncus there is five and six inches high and red (from the cold?) on the bare meadow, — much the most growth of anything of the kind hereabouts. Very little water; only at the cowslip. The equisetum has risen above water at first Nut Meadow crossing. The earliest willows are now in the gray, too advanced to be silvery, — mouse or maltese-cat color.

The Second Division Spring is all covered with a brown floating gelatinous substance of the consistency

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of frog-spawn, but with nothing like spawn visible in it. It is of irregular longish, or rather ropy, form, and is of the consistency of frog-spawn without the ova. I think it must be done with. It quite covers the surface.

I also find near by a green zigzag, wormy, spawn-like substance in strings under the water, in which I feel a sort of granule, spawn-like. Can this be the excrement of any creature? Can it turn and swell to that brown and floating jelly? Are these the productions of lizards or the *Rana fontinalis*?

Tried by various tests, this season fluctuates more or less. For example, we may have absolutely no sleighing during the year. There was none in the winter months of '58 (only from March 4 to 14). '52–'53 was an open winter. Or it may continue uninterrupted from the beginning of winter to the 3d of April, as in '56, and the dependent phenomena be equally late. The river may be either only transiently closed, as in '52–'53 and '57–'58, or it may not be open entirely (up *to* pond) till April 4th.

As for cold, some years we may have as cold days in March as in any winter month. March 4, 1858, it was −14, and on the 29th, 1854, the pump froze so as to require thawing.

The river may be quite high in March or at summer level.

Fair Haven Pond may be open by the 20th of March, as this year, or not till April 13 as in '56, or twenty-three days later.

Tried by the skunk-cabbage, this may flower March 2 ('60) or April 6 or 8 (as in '55 and '54), or some five weeks later, — say thirty-six days.

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The bluebird may be seen February 24, as in '50, '57, and '60, or not till March 24, as in '56, — say twenty-eight days.

The yellow-spotted tortoise may be seen February 23, as in '57, or not till March 28, as in '55, — thirty-three days.

The wood frog may be heard March 15, as this year, or not till April 13, as in '56, — twenty-nine days.

That is, tried by the last four phenomena, there may be about a month's fluctuation, so that March may be said to have receded half-way into February or advanced half-way into April, *i. e.*, it borrows half of February or half of April.

March 27 and 28. Surveying Ed. Hoar's farm in Lincoln.

Fair, but windy and rather cool.

Louis Minor tells me he saw some geese about the 23d.

March 29. Calm, warmer, and pleasant at once.

March 30. A very warm and pleasant day (at 2 P. M., 63° and rising).

More worm-piles in yard (not seen since morning of 20th, on account of cold, etc.). You will see these earlier on warm banks, as at Clamshell, earlier than in our yard. Do not woodcock, etc., feed on them at night? They come out just before the toads which feed on them. These little piles on the bare earth, like dimples on water, remind you of April.

The afternoon so warm — wind southwest — you take off coat. The streets are quite dusty for the first time.

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The earth is more dry and genial, and you seem to be crossing the threshold between winter and summer. At eve I go listening for snipe, but hear none. The inhabitants come forth from their burrows such an afternoon as this, as the woodchuck and ground squirrels have, as the toads do.

I hear of the first fire in the woods this afternoon.[1]

As I walk the street I realize that a new season has arrived. It is time to begin to leave your greatcoat at home, to put on shoes instead of boots and feel light-footed.

March 31. Surveying again for Ed. Hoar the woodland adjoining his farm.

A yet warmer day. A very thick haze, concealing mountains and all distant objects like a smoke, with a strong but warm southwest wind. Your outside coat is soon left on the ground in the woods, where it first becomes quite intolerable. The small red butterfly in the wood-paths and sprout-lands, and I hear at mid-afternoon a very faint but positive ringing sound rising above the susurrus of the pines, — of the breeze, — which I think is the note of a distant and perhaps solitary toad; not loud and ringing, as it will be. Toward night I hear it more distinctly, and am more confident about it. I hear this faint first reptilian sound added to the sound of the winds thus each year a little in advance of the unquestionable note of the toad. Of constant sounds in the warmer parts of warm days there now begins to be added to the rustling or crashing, waterfall-like

[1] Was a small one the 28th.

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sound of the wind this faintest imaginable prelude of the toad. I often draw my companion's attention to it, and he fails to hear it at all, it is so slight a departure from the previous monotony of March. This morning you walked in the warm sprout-land, the strong but warm southwest wind blowing, and you heard no sound but the dry and mechanical susurrus of the wood; now there is mingled with or added to it, to be detected only by the sharpest ears, this first and faintest imaginable voice. I heard this under Mt. Misery. Probably they come forth earlier under the warm slopes of that hill.

The pewee sings in earnest, the first I have heard; and at even I hear the first real robin's song.

I hear that there has been a great fire in the woods this afternoon near the factory. Some say a thousand acres have been burned over. This is the dangerous time, — between the drying of the earth, or say when dust begins to fly, and the general leafing of the trees, when it is shaded again. These fires are a perfectly regular phenomenon of this season. Many refer to them this thick haze, but, though in the evening I smell the smoke (no doubt) of the Concord fire, I think that the haze generally is owing to the warm southwest wind having its vapor condensed by our cooler air. An engine sent from town and a crowd of boys; and I hear that one man had to swim across a pond to escape being burnt.

One tells me he found the saxifrage out at Lee's Cliff this afternoon, and another, Ellen Emerson, saw a yellow or little brown snake, evidently either the *Coluber ordinatus* or else *amœnus*, probably the first.

Sit without fire.

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V

APRIL, 1860

(ÆT. 42)

April 1. *Sunday.* Warm, with the thick haze still concealing the sun.

Worm-piles abundant this morning.

Our gooseberry begins to show a little green, but not our currant.

3 P. M. — Up Assabet in boat.

There is another fire in the woods this afternoon. It is yet more hazy than before, — about as thick as a fog, and apparently clouds behind it. Still warmer than yesterday, — 71 at 3 P. M.

The river was lowest for March yesterday, *viz.* just three feet below Hoar's wall. It is so low that the mouths of the musquash-burrows in the banks are exposed with the piles of shells before them.

Willows about the stump on S. Brown's land are very well out. Are they *discolor?* The red maple buds are considerably expanded, and no doubt make a greater impression of redness.

A kingfisher seen and heard.

As we paddle up the Assabet we hear the wood turtles — the first I have noticed — and painted turtles rustling down the bank into the water, and see where they have travelled over the sand and the mud. This and the previous two days have brought them out in numbers. Also see the sternothærus on the bottom.

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The river being so low, we see lines of sawdust perfectly level and parallel to one another on the side of the steep dark bank at the Hemlocks, for thirty rods or more visible at once, reminding you of a coarse chalk-line made by snapping a string, not more than half an inch wide much of it, but more true than that would be. The sawdust adheres to the perfectly upright bank and probably marks the standstill or highest water for the time. This level line drawn by Nature is agreeable to behold.

The large *Rana fontinalis* sits enjoying the warmth on the muddy shore. I hear the first hylodes by chance, but no doubt they have been heard some time. Hear the hum of bees on the maples. Rye-fields look green. Pickerel dart, and probably have some time. The sweet-gale is almost in bloom; say next pleasant day.[1]

The fruit a thinker bears is *sentences*, — statements or opinions. He seeks to affirm something as true. I am surprised that my affirmations or utterances come to me ready-made, — not fore-thought, — so that I occasionally awake in the night simply to let fall ripe a statement which I had never consciously considered before, and as surprising and novel and agreeable to me as anything can be. As if we only thought by sympathy with the universal mind, which thought while we were asleep. There is such a necessity [to] make a definite statement that our minds at length do it without our consciousness, just as we carry our food to our mouths. This occurred to me last night, but I was so surprised

[1] It sheds its pollen the same night in my chamber, — from the old mill-site, north side.

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by the fact which I have just endeavored to report that I have entirely forgotten what the particular observation was.

April 2. Cold and windy.

2 P. M. — Thermometer 31°, or fallen 40° since yesterday, and the ground slightly whitened by a flurry of snow. I had expected rain to succeed the thick haze. It was cloudy behind the haze and rained a little about 9 P. M., but, the wind having gone northwest (from southwest), it turned to snow.

The shrubs whose buds had begun to unfold yesterday are the spiræa, gooseberry, lilac, and Missouri currant, — the first much the most forward and green, the rest in the order named.

Walked to the Mayflower Path and to see the great burning of the 31st.

I smelled the burnt ground a quarter of a mile off. It was a very severe burn, the ground as black as a chimney-back. The fire is said to have begun by an Irishman burning brush near Wild's house in the south part of Acton, and ran north and northeast some two miles before the southwest wind, crossing Fort Pond Brook. I walked more than a mile along it and could not see to either end, and crossed it in two places. A thousand acres must have been burned. The leaves being thus cleanly burned, you see amid their cinders countless mouse-galleries, where they have run all over the wood, especially in shrub oak land, these lines crossing each other every foot and at every angle. You are surprised to see by these traces how many of these

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creatures live and run under the leaves in the woods, out of the way of cold and of hawks. The fire has burned off the top and half-way down their galleries. Every now and then we saw an oblong square mark of pale-brown or fawn-colored ashes amid the black cinders, where corded wood had been burned.

In one place, though at the north edge of a wood, I saw white birch and amelanchier buds (the base of whose stems had been burned or scorched) just bursting into leaf, — evidently the effect of the fire, for none of their kind is so forward elsewhere.

This fire ran before the wind, which was southwest, and, as nearly as I remember, the fires generally at this season begin on that side, and you need to be well protected there by a plowing or raking away the leaves. Also the men should run ahead of the fire before the wind, most of them, and stop it at some cross-road, by raking away the leaves and setting back fires.

Look out for your wood-lots between the time when the dust first begins to blow in the streets and the leaves are partly grown.

The earliest willows are apparently in prime.[1]

I find that the signs of the weather in Theophrastus are repeated by many more recent writers without being referred to him or through him; *e. g.*, by an authority quoted by Brand in his "Popular Antiquities," who evidently does not know that they are in Theophrastus.

Talking with a farmer who was milking sixteen cows in a row the other evening, an ox near which we stood,

[1] *Vide* forward.

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at the end of the row, suddenly half lay, half fell, down on the hard and filthy floor, extending its legs helplessly to one side in a mechanical manner while its head was uncomfortably held between the stanchions as in a pillory. Thus man's fellow-laborer the ox, tired with his day's work, is compelled to take his rest, like the most wretched slave or culprit. It was evidently a difficult experiment each time to lie down at all without dislocating his neck, and his neighbors had not room to try the same at the same time.

April 4. *Wednesday morning.* Lodged at Sanborn's last night after his *rescue*, he being away.

It is warmer, an April-like morning after two colder and windy days, threatening a moist or more or less showery day, which followed.

The birds sing quite numerously at sunrise about the villages, — robins, *tree sparrows*, and methinks I heard the purple finch. The birds are eager to sing, as the flowers to bloom, after raw weather has held them in check.

April 5. P. M. — Row to Clamshell and walk beyond.

Fair but windy and cool.

When I stand more out of the wind, under the shelter of the hill beyond Clamshell, where there is not wind enough to make a noise on my person, I hear, or think that I hear, a very faint distant ring of toads, which, though I walk and walk all the afternoon, I never come nearer to. It is hard to tell

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if it is not a ringing in my ears; yet I think it is a solitary and distant toad called to life by some warm and sheltered pool or hill, its note having, as it were, a chemical affinity with the air of the spring. It merely gives a slightly more ringing or sonorous sound to the general rustling of inanimate nature. A sound more ringing and articulate my ear detects, under and below the noise of the rippling wind. Thus gradually and moderately the year begins. It creeps into the ears so gradually that most do not observe it, and so our ears are gradually accustomed to the sound, and perchance we do not perceive it when at length it has become very much louder and more general.

It is to be observed that we heard of fires in the woods in various towns, and more or less distant, on the same days that they occurred here, — the last of March and first of April. The newspapers reported many. The same cause everywhere produced the same effect.

April 6. Rainy, more or less, — April weather.

I am struck by the fact that at this season all vegetable growth is confined to the warm days; during the cold ones it is stationary, or even killed. Vegetation thus comes forward rather by fits and starts than by a steady progress. Some flowers would blossom to-morrow if it were as warm as to-day, but cold weather intervening may detain them a week or more. The spring thus advances and recedes repeatedly, — its pendulum oscillates, — while it is carried steadily forward. Animal life is to its extent subject to a similar

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law. It is in warm and calm days that most birds arrive and reptiles and insects and men come forth.

A toad has been seen dead on the sidewalk, flattened.

April 7. The purple finch, — if not before.

P. M. — To Annursnack.

This is the *Rana halecina* day, — awakening of the meadows, — though not very warm. The thermometer in Boston to-day is said to be 49. Probably, then, when it is about 50 at this season, the river being low, they are to be heard in calm places.

Fishes now lie up abundantly in shallow water in the sun, — pickerel, and I see several bream. What was lately motionless and lifeless ice is a transparent liquid in which the stately pickerel moves along. A novel sight is that of the first bream that has come forth from I know not what hibernaculum, moving gently over the still brown river-bottom, where scarcely a weed has started. Water is as yet only melted ice, or like that of November, which is ready to become ice.

As we were ascending the hill in the road beyond College Meadow, we saw the dust, etc., in the middle of the road at the top of the hill taken up by a small whirlwind. Pretty soon it began to move northeasterly through the balm-of-Gilead grove, taking up a large body of withered leaves beneath it, which were whirled about with a great rustling and carried forward with it into the meadow, frightening some hens there. And so they went on, gradually, or rather one after another, settling to the ground, and looking at last almost exactly like a flock of small birds dashing about in sport, till

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they were out of sight forty or fifty rods off. These leaves were chiefly only a rod above the ground (I noticed some taken up last spring very high into the air), and the diameter of the whirl may have been a rod, more or less.

Early potentilla out, — how long? — on side of Annursnack.

April 8 *and* 9. More or less rainy.

April 10. Cheney elm, many anthers shed pollen, probably 7th. Some are killed. *Salix purpurea* apparently will not open for four or five days.

2 P. M. — 44° and east wind (followed by some rain still the next day, as usual).

April 11. P. M. — To Cliffs.

The hills are now decidedly greened as seen a mile off, and the road or street sides pretty brightly so. I have not seen any lingering heel of a snow-bank since April came in.

Acer rubrum west side Deep Cut, some well out, some killed by frost; probably a day or two at least. Hazels there are all done; were in their prime, methinks, a week ago at least. The early willow still in prime. *Salix humilis* abundantly out, how long?

Epigæa abundantly out (probably 7th at least).

Stow's cold pool three quarters full of ice.

My early sedge, which has been out at Cliffs apparently a few days (not yet quite generally), the highest only two inches, is probably *Carex umbellata*.

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April 12. White-bellied swallows. Elm bud-scales have begun to strew the ground, and the trees look richly in flower. 60 at 2 P. M.

Hear a pigeon woodpecker's prolonged cackle.

April 13. P. M. — I go up the Assabet to look at the sweet-gale, which is apparently [?] out at Merrick's shore. It is abundantly out at Pinxter Swamp, and has been some time; so I think I may say that the very first opened April 1st (*q. v.*). This may be not only because the season was early and warm, but because the water was so low, — or would that be favorable?

At first I had felt disinclined to make this excursion up the Assabet, but it distinctly occurred to me that, perhaps, if I came against my will, as it were, to look at the sweet-gale as a matter [of] business, I might discover something else interesting, as when I discovered the sheldrake. As I was paddling past the uppermost hemlocks I saw two peculiar and plump birds near me on the bank there which reminded me of the cow blackbird and of the oriole at first. I saw at once that they were new to me, and guessed that they were crossbills, which was the case, — male and female. The former was dusky-greenish (through a glass), orange, and red, the orange, etc., on head, breast, and rump, the vent white; dark, large bill; the female more of a dusky slate-color, and yellow instead of orange and red. They were very busily eating the seeds of the hemlock, whose cones were strewn on the ground, and they were very fearless, allowing me to approach quite near.

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When I returned this way I looked for them again, and at the larger hemlocks heard a peculiar note, *cheep, cheep, cheep, cheep*, in the rhythm of a fish hawk but faster and rather loud, and looking up saw them fly to the north side and alight on the top of a swamp white oak, while I sat in my boat close under the south bank. But immediately they recrossed and went to feeding on the bank within a rod of me. They were very parrot-like both in color (especially the male, greenish and orange, etc.) and in their manner of feeding, — holding the hemlock cones in one claw and rapidly extracting the seeds with their bills, thus trying one cone after another very fast. But they kept their bills a-going [so] that, near as they were, I did not distinguish the cross. I should have looked at them in profile. At last the two hopped within six feet of me, and one within four feet, and they were coming still nearer, as if partly from curiosity, though nibbling the cones all the while, when my chain fell down and rattled loudly, — for the wind shook the boat, — and they flew off a rod. In Bechstein I read that "it frequents fir and pine woods, but only when there are abundance of the cones." It may be that the abundance of white pine cones last fall had to do with their coming here. The hemlock cones were very abundant too, methinks.

April 14. A strong westerly wind in forenoon, shaking the house.

2 P. M. — 44°. To Easterbrooks's.

Benzoin not for two or three days at least. Goldfinches the 11th and in winter.

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April 15. Strong northwest wind and cold. Thin ice this forenoon along meadow-side, and lasts all day.

2 P. M. — Thermometer 37. To Conantum.

At Conantum pitch pines hear the first pine warbler. Have not heard snipe yet. Is it because the meadows, having been bare, have not been thawed?

See ripples spread fan-like over Fair Haven Pond, from Lee's Cliff, as over Ripple Lake.

Crowfoot abundant; say in prime. A cedar under the Cliff abundantly out; how long? Some still not out. Say 13th. Mouse-ear. Turritis about out; say 16th.

Some little ferns already fairly unfolded, four or five inches long, there close under the base of the rocks, apparently *Woodsia Ilvensis?*

See and hear the seringo, — rather time [*sic*] compared with song sparrow. Probably see bay-wing (surely the 16th) about walls.

The arbor-vitæ *appears* to be much of it effete.

At this season of the year, we are continually expecting warmer weather than we have.

April 16. Rather warm.

In afternoon a true April rain, dripping and soaking into the earth and heard on the roof, which continuing, in the night it is very dark. This is owing to both the absence of the moon and the presence of the clouds.

I observed yesterday, in the cellar of the old Conantum house, a regular frame or "horse" to rest barrels (of cider, vinegar, etc.) on. It was probably made before the house was built, being exactly the length of the cellar, — two pieces of timber framed together, that

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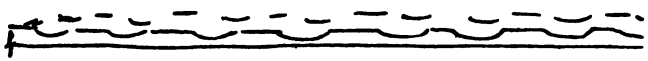
is, connected by crosspieces and lying on the cellar-bottom against one side, the whole length, with concavities cut in them to receive the barrels and prevent their rolling. There were places for eight barrels. It



suggests how much more preparation was made in those days for the storing of liquors. We have at most one keg in our cellar for which such a horse would be a convenient place; yet in this now remote and uncovered cellar-hole lies a horse with places for eight barrels of liquor. It would make a toper's mouth water to behold it. You wonder how they got apples and cider-mills a-going so early, say a hundred and fifty years ago. No doubt they worked hard and sweated a good deal, and perhaps they required, or could bear, more strong drink than the present generation. This horse is a fixture, framed with the house, or rather with the cellar; a first thought it must have been, perchance made by a separate contract, since it comes below the sills. The barrels and their contents, and they who emptied them, and the house above, are all gone, and still the scalloped logs remain now in broad daylight to testify to the exact number of barrels of liquor which the former occupant expected to, and probably did, lay in. His gravestone somewhere tells one sober story no doubt, and this his barrel-horse tells another, — and the only one that I hear. For twenty and odd years only the woodchucks and wild mice to my knowledge have occupied this cellar. Such is the lowest stick of timber in an old New England man's house. He dug a hole

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six feet into the earth and laid down a timber to hold his cider-barrel. Then he proceeded to build a house over it, with kitchen and sitting and sleeping rooms. It reminds me of travellers' stories of the London docks, of rows of hogsheads, of bonded liquors. Every New England cellar was once something like it. It is a relic of old England with her ale. The first settlers made preparations to drink a good deal, and they did not disappoint themselves.

April 17. I hear this forenoon the soothing and simple, though monotonous, notes of the chip-bird, telling us better than our thermometers what degree of summer warmth is reached; adds its humble but very pleasant contribution to the steadily increasing quire of the spring. It perches on a cherry tree, perchance, near the house, and unseen, by its steady *che-che-che-che-che-che*, affecting us often without our distinctly hearing it, it blends all the other and previous sounds of the season together. It invites us to walk in the yard and inspect the springing plants.

The evenings are very considerably shortened. We begin to be more out of doors, the less housed, think less, stir about more, are fuller of affairs and chores, come in chiefly to eat and to sleep. The amelanchier flower-buds are conspicuously swollen. Willows (*Salix alba*) probably (*did not* four or five days ago).

P. M. — Sail to Ball's Hill.

It is quite warm — 67 at 2 P. M. — and hazy, though rather strong and gusty northwest wind.

We land at the Holt and walk a little inland. It is

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unexpectedly very warm on lee side of hilltop just laid bare and covered with dry leaves and twigs. See my first *Vanessa Antiopa*.

Looking off on to the river meadow, I noticed, as I thought, a stout stake aslant in the meadow, three or more rods off, sharp at the top and rather light-colored on one side, as is often the case; yet, at the same time, it occurred to me that a stake-driver often resembled a stake very much, but I thought, nevertheless, that there was no doubt about this being a stake. I took out my glass to look for ducks, and my companion, seeing what I had, and asking if it was not a stake-driver, I suffered my glass at last to rest on it, and I was much surprised to find that it was a stake-driver after all. The bird stood in shallow water near a tussock, perfectly still, with its long bill pointed upwards in the same direction with its body and neck, so as perfectly to resemble a stake aslant. If the bill had made an angle with the neck it would have been betrayed at once. Its resource evidently was to rely on its form and color and immobility solely for its concealment. This was its instinct, whether it implies any conscious artifice or not. I watched it for fifteen minutes, and at length it relaxed its muscles and changed its attitude, and I observed a slight motion; and soon after, when I moved toward it, it flew. It resembled more a piece of a rail than anything else, — more than anything that would have been seen here before the white man came. It is a question whether the bird consciously coöperates in each instance with its Maker, who contrived this concealment. I can never believe that this resemblance

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is a mere coincidence, not designed to answer this very end — which it does answer so perfectly and usefully.

The meadows are alive with purring frogs.

J. Brown says that he saw martins on his box on the 13th and 14th, and that his son saw one the 8th (?).

I notice now and of late holes recently dug, — woodchuck? or fox?

Lake grass was very long — a foot or two — and handsome, the 15th.

Heard a pigeon woodpecker on the 16th.

April 18. Cold, and still a strong wind. 46 at 2 P. M.

The *Salix discolor* peels well; also the aspen (early) has begun to peel.

Melvin says he has heard snipe some days, but thinks them scarce.

As I go by the site of Staples's new barn on the Kettle place, I see that they have just dug a well on the hillside and are bricking it up. They have dug twenty-four feet through sand (no stones of any size or consequence in it; I see none at all in what was thrown out; should say it was pure sand), and have some four feet of water in the well. This is probably as low as water in the meadow in front. It is just as far to water as in Messer's well east of it, and about as high up the hill. The whole range appears to be strictly a sand-hill. Humphrey Buttrick, the sportsman, was at the bottom, bricking up the well; a Clark who had been mining lately in California, and who had dug the well, was passing down brick and mortar to him; and Melvin, with a bundle of apple scions in his hand, was sitting

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close by and looking over into the well from time to time.

Melvin said he feared that, the water being so low, the snipes would be overtaken by it and their nests broken up when it rose; that Josh Haynes told him that he found a woodcock's nest, and afterward he sailed over the nest in a boat, and yet, when the water went down, the bird went on and hatched the eggs.

Melvin has seen a dandelion in bloom.

Clark has heard a partridge drum.

I find that the side-hill just below the Dutch house is more loose and sandy than half a dozen years ago, and I attribute it to the hens wallowing in the earth and dusting themselves, and also pecking the grass and preventing its growing.

April 19. Surveying J. B. Moore's farm.

Hear the field sparrow sing on his dry upland, it being a warm day, and see the small blue butterfly hovering over the dry leaves.

Toward night, hear a partridge drum. You will hear at first a single beat or two far apart and have time to say, "There is a partridge," so distinct and deliberate is it often, before it becomes a rapid roll.

Part of the Bedford road in Moore's Swamp had settled a few days ago so much more that the water was six inches deep over it, when they proceeded to cart on more sand; and about the 17th, when they had carted on considerable, half a dozen rods in length suddenly sank before their eyes, and only water and sand was seen where the road had been. One said that the water

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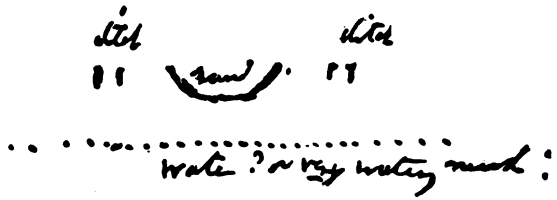
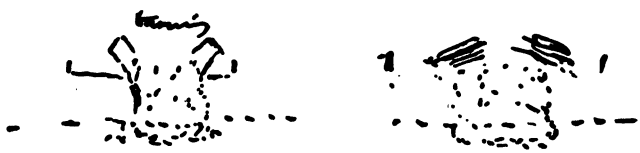
was six feet deep over the road. It certainly was four or five. The road was laid out fifty feet wide, and without this, one ach side, a broad ditch had been dug, thus: —



As I calculate, at least ten feet in thickness of sand have been placed on this swamp, and the firm mud could not have been less than a dozen more. The weight of the sand has now at last pressed down the mud and broken through it, causing the sides to turn up suddenly, *i. e.*, a thickness of six feet or more to turn, indeed, completely over and bottom side up on to the middle of the road a part of the way. The weight of sand suddenly jerked this tremendous weight of mud right back on to the road, bottom up.



The evening of the 21st a few rods more, with the culvert, went down, so that it was full four feet under water, making some seven or eight rods in all.

Up to about the 17th it had settled gradually, but then it sank *instantly* some five feet. This shows that the

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weight of sand had burst through the mud, and that therefore it must have been comparatively liquid beneath. Perhaps it was water. In the deepest part of many a seemingly firm swamp which is cultivated, there is an exceedingly thin and liquid mud, or perhaps water. Here was probably once a pond, which has filled up and grown over, but still a relic of it survives deep under the mud in the deepest part.

There are thus the relics of ponds concealed deep under the surface, where they are little suspected, perchance, as under cleared and cultivated swamps or under roads and culverts. The two walls of the culvert must have been ten or twelve feet high, of heavy rocks, and yet they had not broken through in all this time till now!

April 20. The *Salix purpurea* in prime; began, say, 18th.

A warm day. Now begin to sit without fires more commonly, and to wear but one coat commonly.

Moore tells me that last fall his men, digging sand in that hollow just up the hill, dug up a parcel of snakes half torpid. They were both striped and black together, in a place somewhat porous, he thought where a horse had been buried once. The men killed them, and laid them all in a line on the ground, and they measured several hundred feet. This seems to be the common practice when such collections are found; they are at once killed and stretched out in a line, and the sum of their lengths measured and related.

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It is a warm evening, and I hear toads ring distinctly for the first time.

C. sees bluets and some kind of thrush to-day, size of wood thrush, — *he* thought probably hermit thrush.

April 22. Row to Fair Haven.

Thermometer 56° or 54°.

See shad-flies. Scare up woodcock on the shore by my boat's place, — the first I had seen. It was feeding within a couple of rods, but I had not seen or thought of it. When I made a loud and sharp sound driving in my rowlocks, it suddenly flew up. It is evident that we very often come quite near woodcocks and snipe thus concealed on the ground, without starting them and so without suspecting that they are near. These marsh-birds, like the bittern, have this habit of keeping still and trusting to their resemblance to the ground.

See now hen-hawks, a pair, soaring high as for pleasure, circling ever further and further away, as if it were midsummer. The peculiar flight of a hawk thus fetches the year about. I do not see it soar in this serene and leisurely manner very early in the season, methinks.

The early luzula is almost in bloom; makes a show, with its budded head and its purplish and downy, silky leaves, on the warm margin of Clamshell Bank. Two or three dandelions in bloom spot the ground there.

Land at Lee's Cliff. The cassandra (water-brush) is well out, — how long? [1] — and in one place we dis-

[1] One found it the 20th.

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turb great clouds of the little fuzzy gnats that were resting on the bushes, as we push up the shallow ditch there. The *Ranunculus fascicularis* is now in prime, rather than before. The columbine is hardly yet out.

I hear that the *Viola ovata* was found the 17th and the 20th, and the bloodroot in E. Emerson's garden the 20th.

J. B. Moore gave me some mineral which he found being thrown out of [a] drain that was dug between Knight's factory and his house. It appears to me to be red lead and quartz, and the lead is quite pure and marks very well, or freely, but is pretty dark.

April 24. The river is only half an inch above summer level. The meadow-sweet and hardhack have begun to leaf.

April 25. A cold day, so that the people you meet remark upon it, yet the thermometer is 47 at 2 P. M. We should not have remarked upon it in March. It is cold for April, being windy withal.

I fix a stake on the west side the willows at my boat's place, the top of which is at summer level and is about ten and a half inches below the stone wharf there. The river is one and one fourth inches above summer level to-day. That rock northwest of the boat's place is about fifteen inches (the top of it) below summer level. Heron Rock top (just above the junction of the rivers) is thirteen inches above summer level. I judge by my eye that the rock on the north side,

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where the first bridge crossed the river, is about four inches lower than the last.

Mr. Stewart tells me that he has found a gray squirrel's nest up the Assabet, in a maple tree. I resolve that I too will find it. I do not know within less than a quarter of a mile where to look, nor whether it is in a hollow tree, or in a nest of leaves. I examine the shore first and find where he landed. I then examine the maples in that neighborhood to see what one has been climbed. I soon find one the bark of which has been lately rubbed by the boots of a climber, and, looking up, see a nest. It was a large nest made of maple twigs, with a centre of leaves, lined with finer, about twenty feet from the ground, against the leading stem of a large red maple. I noticed no particular entrance. When I put in my hand from above and felt the young, they uttered a dull croak-like squeak, and one clung fast to my hand when I took it out through the leaves and twigs with which it was covered. It was yet blind, and could not have been many days old, yet it instinctively clung to my hand with its little claws, as if it knew that there was danger of its falling from a height to the ground which it never saw. The idea of clinging was strongly planted in it. There was quite a depth of loose sticks, maple twigs, piled on the top of the nest. No wonder that they become skillful climbers who are born high above the ground and begin their lives in a tree, having first of all to descend to reach the earth. They are cradled in a tree-top, in but a loose basket, in helpless infancy, and there slumber when their mother is away. No wonder that they are never made

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dizzy by high climbing, that were born in the top of a tree, and learn to cling fast to the tree before their eyes are open.

On my way to the Great Meadows I see boys a-fishing, with perch and bream on their string, apparently having good luck, the river is so low.

The river appears the lower, because now, before the weeds and grass have grown, we can see by the bare shore of mud or sand and the rocks how low it is. At midsummer we might imagine water at the base of the grass where there was none.

I hear the greatest concerts of blackbirds, — redwings and crow blackbirds nowadays, especially of the former (also the 22d and 29th). The maples and willows along the river, and the button-bushes, are all alive with them. They look like a black fruit on the trees, distributed over the top at pretty equal distances. It is worth while to see how slyly they hide at the base of the thick and shaggy button-bushes at this stage of the water. They will suddenly cease their strains and flit away and secrete themselves low amid these bushes till you are past; or you scare up an unexpectedly large flock from such a place, where you had seen none.

I pass a large quire in full blast on the oaks, etc., on the island in the meadow northwest of Peter's. Suddenly they are hushed, and I hear the loud rippling rush made by their wings as they dash away, and, looking up, I see what I take to be a sharp-shinned hawk just alighting on the trees where they were, having failed to catch one. They retreat some forty rods off, to another tree, and renew their concert there. The hawk plumes him-

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self, and then flies off, rising gradually and beginning to circle, and soon it joins its mate, and soars with it high in the sky and out of sight, as if the thought of so terrestrial a thing as a blackbird had never entered its head. It appeared to have a plain reddish-fawn breast. The size more than anything made me think it a sharp-shin.

When looking into holes in trees to find the squirrel's nest, I found a pout partly dried, with its tail gone, in one maple, about a foot above the ground. This was probably left there by a mink. Minott says that, being at work in his garden once, he saw a mink coming up from the brook with a pout in her mouth, half-way across his land. The mink, observing him, dropped her pout and stretched up her head, looking warily around, then, taking up the pout again, went onward and went under a rock in the wall by the roadside. He looked there and found the young in their nest, — so young that they were all "red" yet.

April 26. Hear the ruby-crowned wren in the morning, near George Heywood's.

We have had no snow for a long long while, and have about forgotten it. Dr. Bartlett, therefore, surprises us by telling us that a man came from Lincoln after him last night on the wheels of whose carriage was an inch of snow, for it snowed there a little, but not here. This is connected with the cold weather of yesterday; the chilling wind came from a snow-clad country. As the saying is, the cold was in the air and had got to come down.

To-day it is 53° at 2 P. M., yet cold, such a difference is there in our feelings. What we should have called a

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warm day in March is a cold one at this date in April. It is the northwest wind makes it cold.

Out of the wind it is warm. It is not, methinks, the same air at rest in one place and in motion in another, but the cold that is brought by the wind seems not to affect sheltered and sunny nooks.

P. M. — To Cliffs and Well Meadow.

Comptonia. There are now very few leaves indeed left on the young oaks below the Cliffs. Sweet-briar, thimble-berry, and blackberry on warm rocks leaf early.

Red maples are past prime. I have noticed their handsome crescents over distant swamps commonly for some ten days. At height, then, say the 21st. They are especially handsome when seen between you and the sunlit trees.

The *Amelanchier Botryapium* is leafing; will apparently bloom to-morrow or next day. Sweet-fern (that does not flower) leafing.

The forward-rank sedge of Well Meadow which is so generally eaten (by rabbits, or possibly woodchucks), cropped close, is allied to that at Lee's Cliff, which is also extensively browsed now. I have found it difficult to get whole specimens. Certain tender early greens are thus extensively browsed now, in warm swamp-edges and under cliffs, — the bitter cress, the *Carex varia* (?) at Lee's, even skunk-cabbage.

The hellebore now makes a great garden of green under the alders and maples there, five or six rods long and a foot or more high. It grows thus before these trees have begun to leaf, while their numerous stems serve only to break the wind but not to keep out the sun. It is the

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greatest growth, the most massive, of any plant's; now ahead of the cabbage. Before the earliest tree has begun to leaf it makes conspicuous green patches a foot high.

The river is exactly at summer level.

April 27. River five eighths of an inch below summer level.

P. M. — Row to Conantum.

At the stone bridge the lower side outer end of the stone is about a quarter of an inch above summer level.

I saw yesterday, and see to-day, a small hawk which I take to be a pigeon hawk. This one skims low along over Grindstone Meadow, close to the edge of the water, and I see the blackbirds rise hurriedly from the button-bushes and willows before him. I am decided by his size (as well as color) and his low, level skimming.[1]

The river meadows are now so dry that E. Wood is burning the Mantatuket one. Fishes are rising to the shad-flies, probably because the river is so low.

Luzula a day or two at Clamshell. Strawberry well out; how long? *Viola ovata* common. One dandelion white, as if going to seed! *Thalictrum anemonoides* are abundant, maybe two or three days, at Blackberry Steep.

I see where a robin has been destroyed, probably by a hawk. I think that I see these traces chiefly in the spring and fall. Why so? Columbine, but perhaps earlier, for I hear that it has been plucked here.

[1] Methinks I saw a yet smaller hawk, perhaps sparrow hawk, fly or skim over the village about the 12th.

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I see, close under the rocks at Lee's, some *new* polypody flatted out.

I stand under Lee's Cliff. There is a certain summeriness in the air now, especially under a warm cliff like this, where you smell the very dry leaves, and hear the pine warbler and the hum of a few insects, — small gnats, etc., — and see considerable growth and greenness. Though it is still windy, there is, nevertheless, a certain serenity and long-lifeness in the air, as if it were a habitable place and not merely to be hurried through. The noon of the year is approaching. Nature seems meditating a siesta. The hurry of the duck migration is, methinks, over. But the woods generally, and at a distance, show no growth yet.

There is a large fire in the woods northwest of Concord, just before night. A column of smoke is blown away from it far southeast, and as the twilight approaches, it becomes more and more dun. At first some doubted if it was this side the North River or not, but I saw that Annursnack was this side of it, but I expected our bells would ring presently. One who had just come down in the cars thought it must be in Groton, for he had left a fire there. And the passengers in the evening train from Boston said that they began to see the smoke of it as soon as they left the city! So hard is it to tell how far off a great fire is.[1]

April 28. P. M. — To Ed. Hoar's, Lincoln. Warm. 65°.

[1] I learn afterward that it was just this side of Groton Junction in Groton. Some seven hundred acres burned. *Vide* Apr. 30th.

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The common *Salix rostrata* on east side railroad, yesterday at least. *S. Torreyana* a day or two longer. These willows are full of bees and resound with their hum. I see honey-bees laden with large pellets of the peculiar yellow pollen of the *S. rostrata*. Methinks I could tell when that was in bloom by catching the bees on their return to the hive. Here are also much smaller bees and flies, etc., etc., all attracted by these flowers. As you stand by such a willow in bloom and resounding with the hum of bees in a warm afternoon like this, you seem nearer to summer than elsewhere.

Again I am advertised of the approach of a new season, as yesterday. The air is not only warmer and stiller, but has more of meaning or smothered voice to it, now that the hum of insects begins to be heard. You seem to have a great companion with you, are reassured by the scarcely audible hum, as if it were the noise of your own thinking. It is a voiceful and significant stillness, such as precedes a thunder-storm or a hurricane. The boisterous spring winds cease to blow, the waves to dash, the migrating ducks to vex the air so much. You are sensible of a certain repose in nature.

Sitting on Mt. Misery, I see a very large bird of the hawk family, blackish with a partly white head but no white tail, — probably a fish hawk; sailed quite near, looking very large.

Large ants at work; how long?

April 29. River two and seven eighths inches below summer level at 6 A. M. Three plus inches below at night.

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Peetweet. I see this above Dodd's, and in the afternoon another up Assabet. As if they had come together from the south, — those bound to this river valley, — for they are not a numerous bird. I have in other instances noticed that birds which are not seen flying in flocks will yet arrive in a town generally, in all parts of it, the same day.

We have had but little fire for two or three weeks past. A few bits of old board, which make a quick blaze, suffice to take off the chill of your chamber in the morning. You now look on heaps of fuel with indifference. One old plank, well husbanded, is sufficient shield against all the cold that is to come.

The frost melting at 6 A. M. wets my feet. It is almost a dew then.

The only change in the distant forest is the red crescents to the red maples of late.

I see the downy tall anemone heads yet, and, in some cases, the cotton which remains is entirely free of seed, and is very prettily recurved, in the form of a fool's-cap or short cone. You could not do it with your fingers.

P. M. — Up Assabet.

The earliest aspen is just bursting into bloom, but none is quite flatted out.

I listen to a concert of red-wings, — their rich sprayey notes, amid which a few more liquid and deep in a lower tone or undertone, as if it bubbled up from the very water beneath the button-bushes; as if those singers sat lower. Some old and skillful performer

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A Concert of Blackbirds

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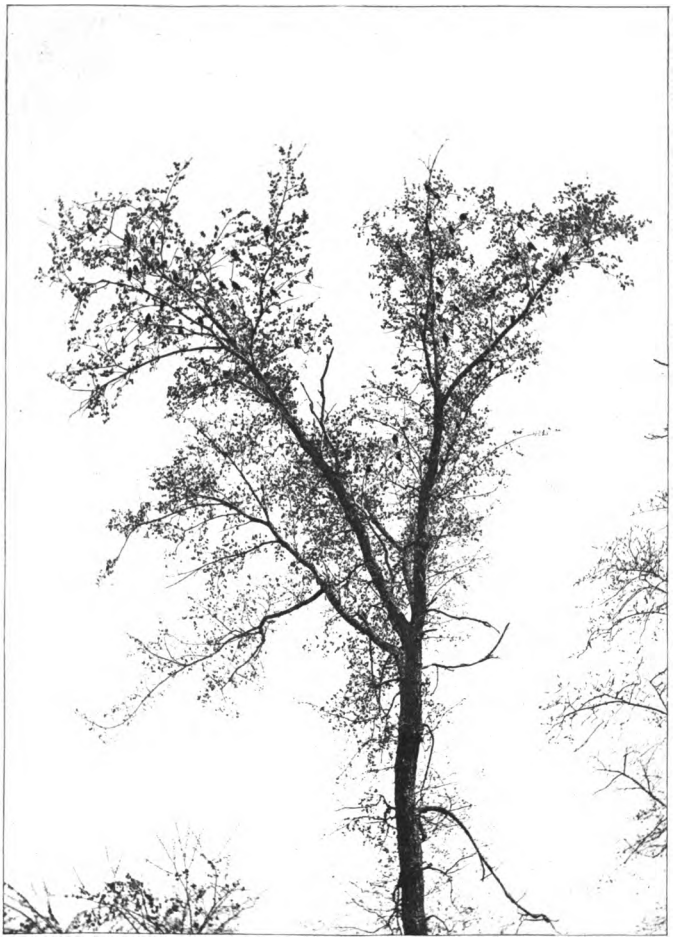

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touches these deep and liquid notes, and the rest seem to get up a concert just to encourage him. Yet it is ever a prelude or essay with him, as are all good things, and the melody he is capable of and which we did not hear this time is what we remember. The future will draw him out. The different individuals sit singing and pluming themselves and not appearing to have any conversation with one another. They are only tuning all at once; they never seriously perform; the hour has not arrived. Then all go off with a hurried and perhaps alarmed *tchuck tchuck.*

A clam lies up.

I stepped ashore behind Prichard's to examine a dead mud turtle, and when I had done, and turned round toward my boat again, behold, it was half-way across the river, blown by the southwest wind! The wind had risen after I landed, and perhaps I had given it a slight impulse with my foot when I landed. It lodged against a clump of willows on the other side, and I was compelled to return up-stream to borrow another boat to get it with. When I had borrowed a boat, I came near making the mistake of simply crossing the stream at once and running down the opposite shore; as if I could release my own boat and return on the same side to the borrowed one, return that, and so have got over my difficulties. I had to pause a moment and cipher it out in my mind.

It was remarkable how rapidly this large snapping turtle, which was killed last fall, had decayed. There [was] very little indeed of offensive odor about it. The shell contained only skin and bones now, and the pre-

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vailing odor was a peculiarly salt one, like strong dry salt fish. But a small dead dog of apparently the same age near by was much more offensive.

I have noticed before that turtles and snakes are decomposed rapidly. Perhaps it is so with all reptiles.

It was remarkable what a bar the river had become to me, being between me and my boat, — how comparatively helpless I was. I have rarely looked at it in that light. There was no way but to row quite down to my boat, bring it over to this side, row back with the borrowed boat, and return on the bank to my own. It reminded me of the man crossing the bridge with a fox, a goose, and a peck of corn. By the time I got under weigh again the afternoon was too far spent for a long excursion.

The turtle's scales were more than half of them off, and its long framework loosened, and the very bones of its head seemed somewhat decayed.

The river being very low, I notice, up the Assabet, where the muddy shore has been probed either by a peetweet (do they feed thus?) or a woodcock or snipe, — I am inclined to think the peetweet, for I see them along the river just arrived. According to this, this bird is so confined in its range that perhaps I could tell if it had come by finding its track on the mud or sand.

When I examine a flat sandy shore on which the ripples now break, I find the tracks of many little animals that have lately passed along it close to the water's edge. Some, indeed, have come out of the water and gone into it again. Minks, squirrels, and birds; they it is that walk these inland strands. The moist sand and mud which

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the water has but just ceased to dash over retains the most delicate impressions. It is the same with all our rivers. I have noticed it on the sandy shore of the broad Merrimack. Many little inhabitants of the wood and of the water have walked there, though probably you will not see one. They make tracks for the geologists. I now actually see one small-looking rusty or brown black mink scramble along the muddy shore and enter a hole in the bank.

I see swarms of water-bugs at rest in still bays under the willows and button-bushes, but when I approach near they begin to gyrate rapidly, and this evidently is their resource to avoid capture.

On the west side, just at the bend of the river by Dove Rock, where the ripples have caused the sandy strand to cave and made a perpendicular cliff an inch high, I notice, rising above the sand and waving in the water, what look at first like stubble of rye or pipes. With my finger I dig some up, two or three inches long and half in the sand. They look even like earthworms coated with sand, are hollow cylinders of sand, and have a certain toughness, breaking when drawn apart just as if there was a skin to them. They are both simple, more or less upright, flexible and waving, and also are branched sometimes.

I bring some home, which, dried and half flattened, look just like dead fishworms that have fallen in the sand. When I place a piece in the palm of my hand and rub it with my finger, it is reduced at once to pure sand and there is no vestige of a skin. The man of the Aquarium tells me, after this, that he finds

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exactly similar things by the salt water, with worms in them.

I detect a new water-plant which I must have often seen before and confounded with the ranunculuses, utricularias, and potomogetons. It *appears* to be the *Naias flexilis*, said to bloom in July and August. Much of it is covered with a whitish mealy-looking substance. It forms dense beds on the bottom in muddy places, *e. g.* west side just above sawed maple. I see its buds plainly now.

April 30. Cattle begin to go up-country, and every week day, especially Mondays, to this time [*sic*] May 7th,[1] at least, the greatest droves to-day. Methinks they will find slender picking up there for a while. Now many a farmer's boy makes his first journey, and sees something to tell of, — makes acquaintance with those hills which are mere blue warts in his horizon, finds them solid and *terra firma*, after all, and inhabited by herdsmen, partially befenced and measurable by the acre, with cool springs where you may quench your thirst after a dusty day's walk.

Surveying Emerson's wood-lot to see how much was burned near the end of March, I find that what I anticipated is exactly true, — that the fire did not burn hard on the northern slopes, there being then frost in the ground, and where the bank was very steep, say at angle of forty-five degrees, which was the case with more than a quarter of an acre, it did not run down at all, though no man hindered it.

[1] And 14th; thereafter few.

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That fire in the woods in Groton on the 27th, which was seen so far, so very dun and extensive the smoke, so that you looked to see the flames too, proves what slight burnings it is, comparatively, that we commonly see making these cloud-like or bluish smokes in the horizon, and also how very far off they may often be. Those whitish columns of smoke which we see from the hills, and count so many of at once, are probably often fifty or sixty miles off or more. I can now believe what I have read of a traveller making such a signal on the slope of the Rocky Mountains a hundred miles off, to save coming back to his party. Yet, strange to say, I did not see the smoke of the still larger fire between Concord and Acton in March at all, I being in Lincoln and outdoors all the time. This Groton fire did not seem much further off than a fire in Walden Woods, and, as I believe and hear, in each town the inhabitants supposed it to be in the outskirts of their own township.

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VI

MAY, 1860

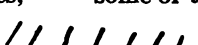
(ÆT. 42)

May 1. Plant potatoes; the very *midst* of early potato planting.

I now, as usual, turn up numerous yellow dor-bugs, which are as yet a very pale yellow, not having been exposed to the light. Also those great white potato-worms.

The sugar maple keys (or buds?) hang down one inch, quite.

Ed. Emerson's snails (the simplest kind) spawned March 28. I see young now as big as the head of a pin. The stones in his aquarium are covered with very minute green polypuses, some of them budded. The incipient ones are like a fine forest. You can only see them against a strong light.



May 2. River three and five sixteenths below summer level.

I observed on the 29th that the clams had not only been moving much, furrowing the sandy bottom near the shore, but generally, or almost invariably, had moved toward the middle of the river. Perhaps it had something to do with the low stage of the water. I saw one making his way — or perhaps it had rested since

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morning — over that sawdust bar just below Turtle Bar, toward the river, the surface of the bar being an inch or two higher than the water. Probably the water, falling, left it thus on dry (moist) land.

I notice this forenoon (11.30 A. M.) remarkably round-topped white clouds just like round-topped hills,

on all sides of the sky, often a range of such, such

as I do not remember to have seen before. There was considerable wind on the surface, from the northeast, and the above clouds were moving west and southwest, — a generally distributed cumulus. What added to the remarkableness of the sight was a very fine, fleecy cirrhus, like smoke, narrow but of indefinite length, driving swiftly eastward beneath the former, proving that there were three currents of air, one above the other. (The same form of cloud prevailed to some extent the next day.)

Salix alba apparently yesterday.

The early potentillas are now quite abundant.

P. M. — To stone-heaps and stone bridge.

Since (perhaps) the middle of April we have had much easterly (northeast chiefly) wind, and yet no rain, though this wind rarely fails to bring rain in March. (The same is true till 9th of May at least; *i. e.*, in spite of east winds there is no rain.)

I find no stone-heaps made yet, the water being very

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low. (But since — May 8th — I notice them, and perhaps I overlooked them before.)

I notice on the east bank by the stone-heaps, amid the bushes, what I supposed to be two woodchucks' holes, with a well-worn path from one to the other, and the young trees close about them, aspen and black cherry, had been gnawed for a foot or more upward for a year or two. There were some fresh wounds, and also old and extensive scars of last year partially healed.

The naked viburnum is leafing. The sedge apparently *Carex Pennsylvanica* has now been out on low ground a day or two.

A crowd of men seem to generate vermin even of the human kind. In great towns there is degradation undreamed of elsewhere, — gamblers, dog-killers, rag-pickers. Some live by robbery or by luck. There was the Concord muster (of last September). I see still a well-dressed man carefully and methodically searching for money on the muster-fields, far off across the river. I turn my glass upon him and notice how he proceeds. (I saw them searching there in the fall till the snow came.) He walks regularly and slowly back and forth over the ground where the soldiers had their tents, — still marked by the straw, — with his head prone, and poking in the straw with a stick, now and then turning back or aside to examine something more closely. He is dressed, methinks, better than an average man whom you meet in the streets. How can he pay for his board thus? He dreams of finding a few coppers, or perchance a half-dime, which have fallen from the soldiers' pockets, and no doubt he *will* find something

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of the kind, having dreamed of it, — having knocked, this door will be opened to him.

Walking over the russet interval, I see the first red-winged grasshoppers. They rise from the still brown sod before me, and I see the redness of their wings as they fly. They are quite shy and hardly let me come within ten feet before they rise again, — often before I have seen them fairly on the ground.

It was 63° at 2 P. M., and yet a good deal of coolness in the wind, so that I can scarcely find a comfortable seat. (Yet a week later, with thermometer at 60 and but little wind, it seems much warmer.)

We have had cool nights of late.

May 3. To Cambridge and Boston.

I see at the Aquarium many of my little striped or barred breams, now labelled *Bryttus obesus*. Compared with the common, they have rounded tails, larger dorsal and anal fins, and are fuller or heavier forward. I observe that they incline to stand on their heads more.

The proprietor said that some little fishes one and a half to two inches long, with a very distinct black line along the sides, which I should have called brook minnows, Agassiz was confident were young suckers, but Mr. Putnam thought that they were the *Leuciscus atronarus*, *i. e.* my brook minnow. I observe that a leuciscus (probably *pulchellus*, if not *argenteus*), five inches long, also has a broad line along the side, but not nearly so dark. He shows me the eudora (water-plant), which he has not seen east of the Connecticut.

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May 4. River three and one fourth inches below summer level. Scales of turtles are coming off (painted turtle). Quite a warm day, — 70 at 6 P. M. Currant out a day or two at least, and our first gooseberry a day later.

P. M. — To Great Meadows by boat.

I see Haynes with a large string of pickerel, and he says that he caught a larger yesterday. There were none of the brook pickerel in this string. He goes every day, and has good luck. It must be because the river is so low. Fishing, then, has fairly commenced. It is never any better pickerel-fishing than now. He has caught three good-sized trout in the river within a day or [two]; one would weigh a pound and a half. One above the railroad bridge, and one off Abner Buttrick's, Saw Mill Brook. He has caught them in the river before, but very rarely. He caught these as he was fishing for pickerel. This, too, may be because the river is low and it is early in the season. He says that he uses the *Rana halecina* for bait; that a pickerel will spit out the yellow-legged one.

Walking over the river meadows to examine the pools and see how much dried up they are, I notice, as usual, the track of the musquash, some five inches wide always, always exactly in the lowest part of the muddy hollows connecting one pool with another, winding as they wind, as if loath to raise itself above the lowest mud. At first he swam there, and now, as the water goes down, he follows it steadily, and at length travels on the bare mud, but as low and close to the water as he can get. Thus he first traces the channel of the future brook and river, and deepens it by dragging his belly along it.

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The Great Meadows in Spring

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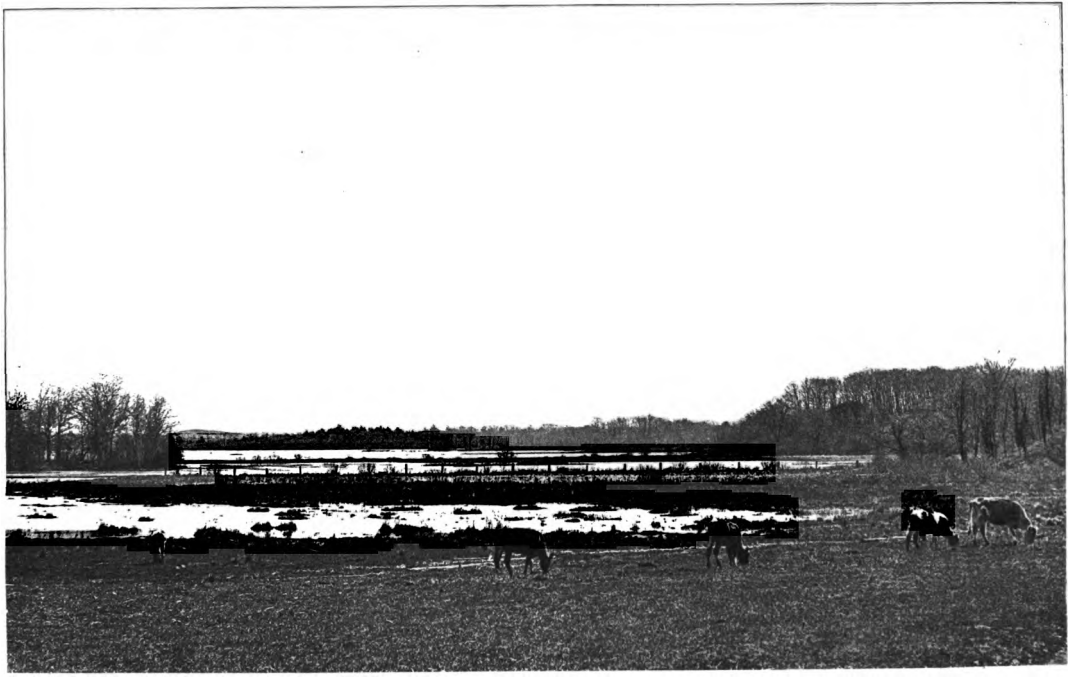

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He lays out and engineers its road. As our roads are said to follow the trail of the cow, so rivers in another period follow the trail of the musquash.

They are perfect rats to look at, and swim fast against the stream. When I am talking on a high bank I often see one swimming along within half a dozen rods and land openly, as if regardless of us. Probably, being under water at first, he did not hear us.

When the locomotive was first introduced into Concord, the cows and horses ran in terror to [the] other sides of their pastures as it passed along, and I suppose that the fishes in the river manifested equal alarm at first; but I notice (to-day, the 11th of May) that a pickerel by Derby's Bridge, poised in a smooth bay, did not stir perceptibly when the train passed over the neighboring bridge and the locomotive screamed remarkably loud. The fishes have, no doubt, got used to the sound.

I see a bullfrog under water.

Land at the first angle of the Holt. Looking across the Peninsula toward Ball's Hill, I am struck by the bright blue of the river (a deeper blue than the sky), contrasting with the fresh yellow green of the meadow (*i. e.* of coarse sedges just starting), and, between them, a darker or greener green next the edge of the river, especially where that small sand-bar island is, — the green of that early rank river-grass. This is the first painting or coloring in the meadows. These several colors are, as it were, daubed on, as on chinaware, or as distinct and simple as a child's painted [*sic*]. I am struck by the amount and variety of color after so much brown.

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As I stood there I heard a thumping sound, which I referred to Peter's, three quarters of a mile off over the meadow. But it was a pigeon woodpecker excavating its nest within a maple within a rod of me. Though I had just landed and made a noise with my boat, he was too busy to hear me, but now he hears my tread, and I see him put out his head and then withdraw it warily and keep still, while I stay there.

Pipes (*Equisetum limosum*) are now generally three to seven inches high, but so brown as yet that I mistook them at a little distance for a dead brown stubble amid the green of springing sedge, and not a fresh growth at all. They are at last a very dark green still, if I remember.

The river is very low, but I find that the meadows, though bare, are not very dry, except for the season, and I am pretty sure that within two or three years, and at this season, I have seen the pools on the meadows drier when there was more water in the river.

The Great Meadows are wet to walk over, after all, and the great pools on them are rather unapproachable, even in india-rubber boots. Apparently it is impossible for the meadows to be so dry at this season, however low the river may be, as they may be at midsummer and later. Their own springs are fuller now.

A *Nuphar advena* in one of these pools what you may call out, for it is rather stale, though no pollen is shed.

What little water there is amid the pipes and sedge is filled and swarming with apparently the larva of some insect, perhaps ephemeræ. They keep up an undulating motion, and have many feathery fringes on the sides.

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I observe fishes close inshore, active and rippling the water when not scared, as if breeding; often their back fins out.

The sun sets red, shorn of its beams.

Those little silvery beetles in Ed. Emerson's aquarium that dash about are evidently the *Notonecta*, or water-boatmen. I believe there is a larger and somewhat similar beetle, which does not swim on its back, called *Dytiscus*.

Missouri currant out; how long?

May 5. Cobwebs on the grass, — half green, half brown, — this morning; certainly not long, perhaps this the first time; and dews.

2 P. M. — 76°. Warm and hazy (and yesterday warm also); my single thick coat too much. Wind southeast. A fresher and cooler breeze is agreeable now. The wind becomes a breeze at this season.

The yellowish (or common) winged grasshoppers are quite common now, hopping and flying before me. *Viola blanda*, how long?

Clams lie up abundantly.

Bluets have spotted the fields for two or three days mingled with the reddish luzula, as in Conant's field north of Holden Wood toward the brook. They fill the air with a sweet and innocent fragrance at a few rods' distance.

I have not worn my outside coat since the 19th of April and now it is the 13th of May; nor, I think, had any fire in my chamber. Latterly have sat with the window open, even at evening.

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Anemone and *Thalictrum anemonoides* are apparently in prime about the 10th of May. The former abounds in the thin young wood behind Lee's Cliff. Tent caterpillar nest an inch and a half over. Dicksonia fern up six inches in a warm place. Yellow butter-flies. *Veronica serpyllifolia*, say yesterday.

There are some dense beds of houstonia in the yard of the old Conantum house. Some parts of them show of a distinctly bluer shade two rods off. They are most interesting now, before many other flowers are out, the grass high, and they have lost their freshness. I sit down by one dense bed of them to examine it. It is about three feet long and two or more wide. The flowers not only crowd one another, but are in several tiers, one above another, and completely hide the ground, — a mass of white. Counting those in a small place, I find that there are about three thousand flowers in a square foot. They are all turned a little toward the sun, and emit a refreshing odor. Here is a lumbering humblebee, probing these tiny flowers. It is a rather ludicrous sight. Of course they will not support him, except a little where they are densest; so he bends them down rapidly (hauling them in with his arms, as it were), one after another, thrusting his beak into the tube of each. It takes him but a moment to dispatch one. It is a singular sight, a humblebee clambering over a bed of these delicate flowers. There are various other bees about them.

See at Lee's a pewee (phœbe) building. She has just woven in, or laid on the edge, a fresh sprig of saxifrage in flower. I notice that phœbes will build in the same

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recess in a cliff year after year. It is a constant thing here, though they are often disturbed. Think how many pewees must have built under the eaves of this cliff since pewees were created and this cliff itself built!! You can possibly find the crumbling relics of how many, if you should look carefully enough! It takes us many years to find out that Nature repeats herself annually. But how perfectly regular and calculable all her phenomena must appear to a mind that has observed her for a thousand years!

Vernal grass at this cliff (common at Damon's Spring the 12th). The marginal shield fern is one foot high here. *Amelanchier Botryapium* flower in prime.

Have seen no ducks for a week or more.

Knawel some time. *Vaccinium Pennsylvanicum* flowers against rocks, not long.

Sun goes down red. Hear of bear-berry well out the 29th of April at Cliffs, and there probably some days.

The peepers and toads are in full blast at night.

May 6. River three and one fourth inches below summer level. Why is it only three eighteenths of an inch lower than last Sunday (April 29)? For we are in the midst of a remarkable drought, and I think that if there had been any rain within a week near the sources of the river I should have heard of it. Is it that these innumerable sources of the river which the springs in the meadows are, are able to keep up the supply? The river had been falling steadily a good while before. Why, then, has it not fallen more the past week?

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The dog's-tooth violet was sent from Cambridge in flower, May 1st.

2 P. M. — To Second Division.

74°; wind southeast; and hazy.

A goldfinch apparently not quite in summer dress; with a dark-brown, not black, front.

See a song sparrow's nest with four eggs in the side of a bank, or rather ditch. I commonly find the earliest ones in such sheltered and concealed places. What did they do before the white man came here with his ditches and stone walls? (Methinks by the 13th I hear the bay-wing sing the oftenest.)

As I go down the warm sandy path in the gully behind J. P. Brown's, I see quite a number of *Viola pedata*, indigo-weed shoots six inches high, a prenanthes leaf eight inches high, and two-leaved Solomon's-seal pushing up, — all signs of warm weather. As the leaves are putting forth on the trees, so now a great many herbaceous plants are springing up in the woods and fields.

There is a peculiar stillness associated with the warmth, which the cackling of a hen only serves to deepen, increasing the Sabbath feeling.

In the Major Heywood path see many rather small (or middle-sized) blackish butterflies. The *Luzula campestris* is apparently in prime.

Oryzopsis grass well out, how long?

Now at last we seek the shade these days, as the most grateful. Sit under the pines near the stone guide-post on the Marlborough road. The note of the pine warbler, which sounded so warm in March, sounds equally cool now.

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The Second Division rush is not yet out. It is the greatest growth of what you may call the grass kind as yet, the reddish tops, say sixteen inches high (above the now green), trembling in the wind very agreeably. The dark beds of the white ranunculus in the Second Division Brook are very interesting, the whitish stems seen amid and behind the dark-brown old leaves.

The white-throated sparrow, and probably the 28th of April. The large osmunda ferns, say one foot high, some of them; also a little brake one foot high. Hear probably a yellow-throated vireo in the woods. A creeper (black and white) yesterday.

Sit on the steep north bank of White Pond. The *Amelanchier Botryapium* in flower now spots the brown sprout-land hillside on the southeast side, across the pond, very interestingly. Though it makes but a faint impression of color, I see its pink distinctly a quarter of a mile off. It is seen now in sprout-lands half a dozen years old, where the oak leaves have just about all fallen except a few white oaks. (It is in prime about the 8th.) Others are seen directly under the bank on which we sit, on this side, very white against the blue water.

Many at this distance would not notice those shad-bush flowers on the hillside, or [would] mistake them for whitish rocks. They are the more interesting for coming thus between the fall of the oak leaves and the expanding of other shrubs and trees. Some of the larger, near at hand, are very light and elegant masses of white bloom. The white-fingered flower of the sprout-lands. In sprout-lands, having probably the start or preëminence over the other sprouts, from not

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being commonly, or [at] all, cut down with the other trees and shrubs, they are as high or higher than any of them for five or six years, and they are so early that they feel almost the full influence of the sun, even amid full-grown deciduous trees which have not leafed, while they are considerably sheltered from the wind by them.

There is so fine a ripple on White Pond that it amounts to a mere imbrication, very regular.

The song of the robin heard at 4.30 P. M., this still and hazy day, sounds already vespertinal. Maple keys an inch and a half long.

Mists these mornings.

Our second shad-bush out, how long? It is generally just beginning in the woods.

My chamber is oppressively warm in the evening.

May 7. River one eighth of an inch lower than yesterday.

Chimney swallow. Catbird sings. Hear the white-throat sparrow's *peabody* note in gardens.

Canada plum in full bloom, or say in prime. Also common plum in full bloom?

It is very hazy, as yesterday, and I smell smoke.

P. M. — To Assabet stone bridge.

Find in the road beyond the Wheeler cottages a little round, evidently last year's, painted turtle. Has no yellow spots, but already little red spots on the edges of the sides. The sternum a sort of orange or pinkish-red.

This warm weather, I see many new beetles and other

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insects. *Ribes florida* by bridge (flower). Cultivated cherry flowered yesterday at least, not yet ours.

Myrtle-bird.

Met old Mr. Conant with his eye and half the side of his face black and blue, looking very badly. He said he had been jerked down on to the barn-floor by a calf some three weeks old which he was trying to lead. The strength of calves is remarkable. I saw one who had some difficulty in pulling along a calf not a week old. With their four feet they have a good hold on the earth. The last one was sucking a cow that had sore teats, and every time it bunted, the cow kicked energetically, raking the calf's head and legs, but he stood close against the cow's belly and never budged in spite of all her kicks, though a man would have jumped out of the way. Who taught the calf to bunt?

I saw bluets whitening the fields yesterday a quarter of a mile off. They are to the sere brown grass what the shad-bush is now to the brown and bare sprout-lands or young woods.

When planting potatoes the other day, I found small ones that had been left in the ground, perfectly sound!

May 8. A cloudy day.

The small pewee, how long. The night-warbler's note. River four and seven eighths inches below summer level. Stone-heaps, how long?

I see a woodchuck in the middle of the field at Assabet Bath. He is a [an indecipherable word] heavy fellow with a black tip to his tail, poking about almost

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on his belly, — where there is but little greenness yet, — with a great heavy head. He is very wary, every minute pausing and raising his head, and sometimes sitting erect and looking around. He is evidently nibbling some green thing, maybe clover. He runs at last, with an undulating motion, jerking his lumbering body along, and then stops when near a hole. But on the whole he runs and stops and looks round very much like a cat in the fields.

The cinquefoil is closed in a cloudy day, and when the sun shines it is turned toward it.

The simple *peep peep* of the peetweet, as it flies away from the shore before me, sounds hollow and rather mournful, reminding me of the seashore and its wrecks, and when I smell the fresh odor of our marshes the resemblance is increased.

How the marsh hawk circles or skims low, round and round over a particular place in a meadow, where, perhaps, it has seen a frog, screaming once or twice, and then alights on a fence-post! How it crosses the causeway between the willows, at a gap in them with which it is familiar, as a hen knows a hole in a fence! I lately saw one flying over the road near our house.

I see a gray squirrel ascend the dead aspen at the rock, and enter a hole some eighteen feet up it. Just below this, a crack is stuffed with leaves which project. Probably it has a nest within and has filled up this crack.

Now that the river is so low, the bared bank, often within the button-bushes, is seen to be covered with that fine, short, always green *Eleocharis acicularis* (?).

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C. has seen a brown thrasher and a republican swallow to-day.

May 9. River five and three fourths inches below summer level.

I think I heard a bobolink this forenoon.

A boy brought me what I take to be a very red *Rana sylvatica*, caught on the leaves the 6th.

Have had no fire for more than a fortnight, and no greatcoat since April 19th.

Fir balsam bloom. Sugar maple blossoms are now a tender yellow; in prime, say 11th. Thousands of dandelions along the meadow by the Mill Brook, behind R. W. E.'s, in prime, say 10th.[1]

P. M. — To Flint's Pond.

It is a still, cloudy, thoughtful day.

Oven-bird, how long? In Ebby Hubbard's wood, I climb to a hole in a dead white pine, a dozen feet up, and see by the gray fur about the edge of the hole that it probably has been used by the gray squirrel. Maryland yellow-throat.

We sit by the shore of Goose Pond. The tapping of a woodpecker sounds distinct and hollow this still cloudy day, as not before for a long time, and so do the notes of birds, as if heard against a background for a relief, *e. g.* the cackle of the pigeon woodpecker, the note of the jay, the scratching in the dry leaves of three or four chewinks near us (for they are not shy), about the pond, under the blueberry bushes. The water is smooth. After sitting there a little while, I count the

[1] By the 18th are much concealed by grass.

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noses of twenty frogs within a couple of rods, which have ventured to come to the surface again, — so quietly that I did not see one come up. At the fox-hole by Britton's Hollow there are some three cart-buck-loads of sand cast out.

That large pine-tree moss that makes beds on the ground, now fruiting, when I brush my hand over its fruit is surprisingly stiff and elastic like wires.

Yellow lily pads begun to spread out on some pools, but hardly yet on the river; say 10th on river.

Golden robin.

The wall by the road at the bars north of Cyrus Smith's chestnut grove is very firmly bound together by the *Rhus Toxicodendron* which has overrun it, for twenty feet in length. Would it not be worth the while to encourage its growth for this purpose, if you are not afraid of being poisoned? It runs up by small root-like stems, which cling close and flat to the wall, and which intertwine and seem to take a new start from the top of the wall (as from the ground), where the stems are generally larger than below, so that it is in fact a row of this rhus growing on the top of the wall to some three or four feet above it, and by its rooty stems binding the stones very firmly together. How much better this than sods on a wall!

Of that *early* sedge in Everett's meadow,[1] the topmost spikes are already effete; say a week, then. I see a second amelanchier with a distinct pink or rosaceous tinge like an apple blossom. Elm seed has begun to fall.

[1] *Carex stricta.*

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Cattle going up country for ten days past.[1] You must keep your gate shut.

May 10. River six and one eighth inches below summer level.

Thermometer at 2 P. M., 71. The winds died away with April.

In the midst of a remarkable drought. Hear of great fires in the woods up country the past week, it is so dry. Some farmers plowed around their houses to save them.

P. M. — To Bateman's Pond.

Salix alba flower in prime and resounding with the hum of bees on it. The sweet fragrance fills the air for a long distance. How much the planting of this willow adds to the greenness and cheerfulness of our landscape at this season!

As I stand on Hunt's Bridge, I notice the now comparatively dark green of the canary grass (*Phalaris*), the coarse grass vigorously spring[ing] up on the muddy islands and edges, the glaucous green of *Carex stricta* tufts, and the light yellowish green of the very coarse sedges of the meadow.

Going over the hill behind S. Brown's, when we crossed the triangular space between the roads beyond the pump-maker's, I saw countless little heaps of sand like the small ant-hills, but, looking more closely, the size of the holes (a little less than a quarter of an inch) and the comparative irregularity of the heaps — as if the sand had been brought forth and dropped in greater

[1] Yes, and the 14th.

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quantity at once — attracted my attention and I found they were the work of bees. The bees were hovering low over the surface, and were continually entering and issuing from the holes. They were about the size of a honey-bee, black bodied, with, I thought, yellow thighs, — if it was not pollen. Many of the holes appeared to have been freshly stopped up with granules of moist sand. These holes were made close together in the dry and sandy soil there, with very little grass on it, sloping toward the west, between the roads, and covered a triangular space some seven rods by three. I counted twenty-four in a square foot. There must have been some twenty-five thousand of these nests in all. The surface was yellowed with them. Evidently a kind of mining bee.

I see in roadside hard sward, by the brook beyond, a sedge darker than the *stricta* and not in tufts, quite short. Is it the *C. vulgaris*? Its leading spikes are effete.

Evergreen-forest note.

Some very young oaks — white oak, etc. — in woods begin to leaf.

Hear the first cricket.

The red maples, fruiting now, are in the brick-red state.

I heard yesterday one or two warblers. One's note was, in rhythm, like a very feeble field sparrow. Was it the redstart? Probably one or two strange warblers now. Was it not the parti-colored warbler, — with bluish head and yellow beneath, but not the screeper note, but note ending with a jingle slightly like the field sparrow?

Meadow fox-tail grass out several days.

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May 11. The river no lower than yesterday.

Warbling vireo.

2 P. M. — 77°. Very warm. To factory village.

Redstart. Red-wings do not fly in flocks for ten days past, I think.

I see at Damon's Spring some dandelion seeds all blown away, and other perfectly ripe spheres (much more at Clamshell the 13th). It is ripe, then, several days, or say just before elm seed, but the mouse-ear not on the 13th anywhere.

The senecio shows its yellow.

The warmth makes us notice the shade of houses and trees (even before the last have leafed) falling on the greened banks, as Harrington's elm and house. June-like.

See some large black birch stumps all covered with pink scum from the sap.

The *Ranunculus abortivus* well out; say five days? Red cherry in bloom, how long? Yellow violet, almost; say to-morrow.

William Brown's nursery is now white (fine white) with the shepherd's-purse, some twelve to eighteen inches high, covering it under his small trees, like buckwheat, though not nearly so white as that. I never saw so much. It also has green pods. Say it is in prime.

E. Hosmer, as a proof that the river has been lower than now, says that his father, who was born about the middle of the last century, used to tell of a time, when he was a boy, when the river just below Derby's Bridge did not run, and he could cross it dry-shod on the rocks, the water standing in pools when Conant's mill (where

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the factory now is) was not running. I noticed the place to-day, and, low as the river is for the season, it must be at least a foot and a half deep there.

May 12. Celandine. Very hot.

2.30 P. M. — 81°.

We seek the shade to sit in for a day or two. The neck-cloth and single coat is too thick; wear a half-thick coat at last [?].

The sugar maple blossoms on the Common resound with bees.

Ostrya flower commonly out on Island, how long? Maybe a day or two.

First bathe in the river. Quite warm enough.

River five and one half plus inches below summer level.

Very heavy dew and mist this morning; plowed ground black and moist with it. The earth is so dry it drinks like a sponge.

May 13. I observe this morning the dew on the grass in our yard, — literally sparkling drops, which thickly stud it. Each dewdrop is a beautiful crystalline sphere just below (within an eighth of an inch more or less) the tip of the blade. Sometimes there are two or three, one beneath the other, the lowest the largest. Each dewdrop takes the form of the planet itself.

What an advance is this from the sere, withered, and flattened grass, at most whitened with frost, which we have lately known, to this delicate crystalline drop trembling at the tip of a fresh green grass-blade. The surface of the globe is thus tremblingly alive.

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A great many apple trees out, and probably some for two days.

2 P. M. — 82°; warmest day yet.

This and the last two days remarkably warm. Need a half-thick coat; sit and sleep with open window, the 13th.

Row to Bittern Cliff.

The celtis is not yet in bloom.

The river is now six and fifteen sixteenths inches below summer level.

At Clamshell, one cerastium flower quite done and dry. *Ranunculus bulbosus* abundant, spotting the bank; maybe a week. Tall buttercup. Horsemint seen springing up for a week, and refreshing scent.

Hear several bobolinks distinctly to-day.

Hear the *pebbly* notes of the frog.

See the coarse green rank canary grass, springing up amid the bare brown button-bushes and willows. Redwings are evidently busy building their nests. They are sly and anxious, the females, about the button-bushes.

See two crows pursuing and diving at a hen-hawk very high in the air over the river. He is steadily circling and rising. While they, getting above, dive down toward him, passing within a foot or two, making a feint, he merely winks, as it were, bends or jerks his wings slightly as if a little startled, but never ceases soaring, nor once turns to pursue or shake them off. It seemed as if he was getting uncomfortably high for them.

At Holden Swamp, hear plenty of parti-colored warblers (tweezer-birds) and redstarts. *Uvularia sessilifolia* abundant, how long? The swamp is so dry that

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I walk about it in my shoes, and the *Kalmia glauca* is apparently quite backward accordingly, — can scarcely detect any buds of it, — while the rhodora on shore will apparently bloom to-morrow. Hear the *yorrick*.

The intermediate ferns and cinnamon, a foot and a half high, have just *leafeted* out. The sensitive fern is only six inches high, — apparently the latest of all. Sorrel.

It is a remarkable day for this season. You have the heat of summer before the leaves have expanded. The sky is full of glowing summer cumuli. There is no haze; the mountains are seen with perfect distinctness. It is so warm that you can lie on the still brownish grass in a thin coat, and will seek the shade for this purpose.

What is that fern so common at Lee's Cliff, now sprung up a foot high with a very chaffy stem? Marginal shield? Is that *Polypodium Dryopteris* in the bank behind the slippery elm? Now six or seven inches high. There is no mouse-ear down even there. Those heads which have looked most expanded and downy are invariably cut off by some creature (probably insect) and withered. The crickets creak steadily among the rocks. The *Carex varia* (?) at Lee's all gone to seed. Barberry in bloom. *Myosotis stricta*. *Arum triphyllum*, how long? *Cardamine rhomboidea*, apparently to-morrow, just above Bittern Cliff.

It is so warm that I hear the peculiar *sprayey* note of the toad generally at night. The third sultry evening in my chamber. A faint lightning is seen in the north horizon.

The tender yellow green of birches is now the most

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noticeable of any foliages in our landscape, as looking across the pond from Lee's Cliff. The poplars are not common enough. The white birches are now distinguished simply by being clothed with a tender and yellow green, while the trees generally are bare and brown, — upright columns of green dashing the brown hillsides.

May 14. The heat continues.

It is remarkably hazy; wind still northeast. You can hardly see the horizon at all a mile off. The mornings for some time past have been misty rather than foggy, and now it lasts through the day and becomes a haze. The sunlight is yellow through it.

In the afternoon it is cooler, much cooler at about 60, and windier.

Some *Salix discolor* down shows itself before mouse-ear. The order is, then, dandelion, elm seed, willow, and next, probably, mouse-ear down, *i. e.* of the more noticeable seeds.

At Stow's meadow by railroad I see *Carex stipata*, maybe five days out. *C. vulgaris*, five to eight inches high and done[1] (the short scattered dark-scaled one). At Smith's shore the *C. Buxbaumii* is nearly done. Put, then, in the order (the meadow carices observed) till I know better: *C. vulgaris*, May 1st; *C. stricta*, May 3d;[2] *Buxbaumii*, May 6th; *C. stipata*, say 9th; or perhaps the first two together. Flowering fern is a foot high.

[1] Still out near English cress, May 16th.

[2] Still out near English cress, May 16th.

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C. sees the chestnut-sided warbler and the tanager to-day, and heard a whip-poor-will last night.

The early sedges, even in the meadows, have blossomed before you are aware of it, while their tufts and bases are still mainly brown.

May 15. P. M. — To sedge path and Cliffs.

Yesterday afternoon and to-day the east wind has been quite cool, if not cold, but the haze thicker than ever. Too cool, evidently, and windy for warblers, except in sheltered places; too cool in tops of high exposed trees.

The *Carex stricta* and *C. vulgaris* both are common just beyond the English brook cress, and many of both are still in bloom.

I noticed on the 13th my middle-sized orange butterfly with blackish spots.

Noticed on the 6th the largest shrub oak that I know in the road by White Pond, just before getting to the lane.

The *Salix humilis* is going to seed as early as the *discolor*, for aught I see; now downy.

Oaks are just coming into the gray.

Deciduous woods now swarm with migrating warblers, especially about swamps.

Did I not hear part of a grosbeak's strain?

Lousewort flower some time, and frost-bitten.

Under the Cliffs, edge of Gerardia quercifolia Path, the *C. varia*, gone to seed (*vide* press), and, on top of Cliffs near staghorn sumach, *C. Pennsylvanica*, gone to seed and ten or more inches high, also still apparently in bloom (*vide* press).

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Looking from the Cliffs through the haze, the deciduous trees are a mist of leafets, against which the pines are already darkened. At this season there is thus a mist in the air and a mist on the earth.

Rye is a foot or more high, and some [?] two feet, — the early. The springing sorrel, the expanding leafets, the already waving rye tell of June.

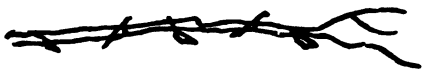
Sun goes down red, and did last night. A hot day does not succeed, but the very dry weather continues. It is shorn of its beams in the mist-like haze.

Ranunculus bulbosus begins in churchyard to-day.

May 16. P. M. — To Copan and Beck Stow's.

2 P. M. — 56°, with a cold east wind. Many people have fires again.

Near Peter's I see a small creeper hopping along the branches of the oaks and pines, ever turning this way and that as it hops, making various angles with the bough; then flies across



to another bough, or to the base of another tree, and traces that up, zigzag and prying into the crevices. Think how thoroughly the trees are thus explored by various birds. You can hardly sit near one for five minutes now, but either a woodpecker or creeper comes and examines its bark rapidly, or a warbler — a summer yellowbird, for example — makes a pretty thorough exploration about all its expanding leafets, even to the topmost twig. The whole North American forest is being thus explored for insect food now by several hundred (?) species of birds. Each is visited by many

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kinds, and thus the equilibrium of the insect and vegetable kingdom is preserved. Perhaps I may say that each opening bud is thus visited before it has fully expanded.

The golden robin utters from time to time a hoarse or grating *cr-r-ack*. The creepers are very common now.

Now that the warblers are here in such numbers is the very time on another account to study them, for the leaf-buds are generally but just expanding, and if you look toward the light you can see every bird that flits through a small grove, but a few weeks hence the leaves will conceal them.

The deciduous trees are just beginning to invest the evergreens, and this, methinks, is the very midst of the leafing season, when the oaks are getting into the gray.

A lupine will open to-day. One wild pink out. Red cherry apparently in prime.

A golden-crowned thrush keeps the trunks of the young trees between me and it as it hops away.

Are those poplars the *tremuliformis* which look so dead south of Holbrook's land, not having leafed out?

Menyanthes, apparently a day or two. *Andromeda Polifolia*, how long? *Andromeda calyculata* much past prime.

Nemopanthes, maybe a day or two out.

The swamps are exceedingly dry. On the 13th I walked wherever I wanted to in thin shoes in Kalmia Swamp, and to-day I walk through the middle of Beck Stow's. The river meadows are more wet, comparatively.

I pass a young red maple whose keys hang down three inches or more and appear to be nearly ripe.

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This, being in a favorable light (on one side from the sun) and being of a high color, — a pink scarlet, — is a very beautiful object, more so than when in flower. Masses of double samaræ unequally disposed along the branches, trembling in the wind. Like the flower of the shad-bush, so this handsome fruit is seen for the most part now against bare twigs, it is so much in advance of its own and of other leaves. The peduncles gracefully rise a little before they curve downward. They are only a little darker shade than the samaræ. There are sometimes three samaræ together. Sun goes down red.

May 17. Quite a fog till 8 A. M., and plowed ground blackened with the moisture absorbed.

J. Farmer sends me to-day what is plainly Cooper's hawk. It is from eighteen to nineteen inches long, and from flexure of wing eleven inches (alar extent thirty-four). The tail extends four or five inches beyond the wings. Tarsus about three inches long and with feet yellow. The bird above is nearly a uniform dark brown, or dark chocolate-brown, with bluish reflections; head darker. Tail with four blackish bands, and narrowly tipped with whitish. Cere greenish. Breast transversely barred with pale rusty, centred longitudinally with darker-brown lines. Under wing-coverts like breast, without the transverse bars. Vent white. Wings beneath (secondaries and primaries) thickly barred with blackish brown and light, — white. Iris yellow. There is attached to the breast fragments of a bluish-white egg. No ruff about eye as in the harrier. (*Vide* the large

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Falco fuscus of August 29, 1858.) It was shot on its nest (a female, then) in a white pine north of Ponkawtasset, on the 16th, and had four eggs which may have been sat on one week.[1]

It agrees very well with Nuttall's account (*q. v.* in my scrap in Giraud), except that the second primary is not equal to the sixth and the tail is *full* nine inches long; also sufficiently with Giraud's account, except that the tarsus is about three inches long. It is a large bird, but rather slender, with a very long tail. This makes the tenth species of the hawk kind that I have seen in Concord. The egg which Farmer saved is one and ten twelfths inches by one and five and a half twelfths, of a regular oval form, bluish-white with a few large, rough dirty spots.

P. M. — To J. Farmer's.

Is not that little fern which I have seen unrolling four or five days, scattered along the low meadow-edge next the river, the *Aspidium Thelypteris*? Now five or six inches high.

A nighthawk with its distinct white spots.

Early aspen down has just begun (before mouse-ear).

Carex crinita just out, or say a day, on the grassy island. The *C. stricta* is common yet there, and interesting, in large thick tufts with its brown spikes. That island is thickly covered with white violets. Common cress out, how long? Many flowers fallen, showing minute pods.

The river is seven and one eighth inches below summer level.

[1] *Vide* May 29th.

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See the sium pushing up near the waterside. It smells, when broken off, like a parsnip.

Standing in the meadow near the early aspen at the island, I hear the first fluttering of leaves, — a peculiar sound, at first unaccountable to me. The breeze causes the now fully expanded aspen leaves there to rustle with a pattering sound, striking on one another. It is much like a gentle surge breaking on a shore, or the rippling of waves. This is the first softer music which the wind draws from the forest, the woods generally being comparatively bare and just bursting into leaf. It was delicious to behold that dark mass and hear that soft rippling sound.

Tupelo buds just expanding, but inconspicuous as yet. Round-leafed cornel leafets, one inch wide. *Salix sericea*, half an inch wide. Lambkill leaf, a day or two. Sarsaparilla flower, apparently yesterday. *Polygala paucifolia* common, how long? Rhodora generally out. *Eleocharis tenuis*, probably two or three days (some of it) in river meadows, as near mouth of Dakin's Brook. May be earlier in midst of Hubbard's Close.

By Sam Barrett's meadow-side I see a female Maryland yellow-throat busily seeking its food amid the dangling fruit of the early aspen, in the top of the tree. Also a chestnut-sided warbler, — the handsome bird, — with a bright-yellow crown and yellow and black striped back and bright-chestnut sides, not shy, busily picking about the expanding leaves of a white birch. I find some minute black flies on them.

Rye two and a half to three feet high. It is so dry that much of the sidesaddle leaf has no water in it.

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Old brown rocks in the river and mill-ponds show by their water-lines how high the water has formerly stood.

Hear of a hummingbird on the 12th.

Willow (*alba*) catkins are in the midst of their fall.

Hear the first bullfrog's *trump*.

May 18. P. M. — To Walden.

The creak of the cricket has been common on all warm, dry hills, banks, etc., for a week, — inaugurating the summer.

Gold-thread out, — how long? — by Trillium Woodside. Trientalis.

The green of the birches is fast losing its prominence amid the thickening cloud of reddish-brown and yellowish oak leafets. The last and others [?] are now like a mist enveloping the dark pines. Apple trees, now, for two or three days, generally bursting into bloom (not in full bloom), look like whitish rocks on the hillsides, — somewhat even as the shad-bush did.

The sand cherry flower is about in prime. It grows on all sides of short stems, which are either upright or spreading, forming often regular solid cylinders twelve to eighteen inches long and only one and a half inches in diameter, the flowers facing out every way, of uniform diameter, determined by the length of the peduncles. Pretty wands of white flowers, with leafets intermingled.

The remarkably dry weather has been both very favorable and agreeable weather to walkers. We have had almost constant east winds, yet generally accompanied with warmth, — none of the rawness of the

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east wind commonly. We have, as it were, the bracing air of the seashore with the warmth and dryness of June in the country.

The night-warbler is a powerful singer for so small a bird. It launches into the air above the forest, or over some hollow or open space in the woods, and challenges the attention of the woods by its rapid and impetuous warble, and then drops down swiftly into the tree-tops like a performer withdrawing behind the scenes, and he is very lucky who detects where it alights.

That large fern (is it *Aspidium spinulosum?*) of Brister Spring Swamp is a foot or more high. It is partly evergreen.

A hairy woodpecker betrays its hole in an apple tree by its anxiety. The ground is strewn with the chips it has made, over a large space. The hole, so far as I can see, is exactly like that of the downy woodpecker, — the entrance (though not so round) and the conical form within above, — only larger.

The bird scolds at me from a dozen rods off.

Now for very young and tender oak leaves and their colors.

May 19. A. M. — River seven inches below summer level.

Wind south, and a gentle intermittent warm rain at last begins. This has been the longest drought that I remember. The last rain was April 16th, except that some detected a few drops falling on the 9th; was literally the last drop we had. If this had occurred a month later, after the crops were fairly growing, it

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would have been a great calamity. As it is, there has been very little growth. My potatoes, planted May 1st, are but just beginning to peep here and there. My corn, planted the 2d, has not a quarter part showed itself, and grass seed sown ten days ago has not germinated. But weeds have not grown as much as usual. It must have been a severe trial for young fruit and other trees. Plowing and planting have been uncommonly dirty work, it has been so dusty.

2 P. M. — To Second Division. Thermometer 72°.

It cleared up at noon, to our disappointment, and very little rain had fallen.

There is a strong southwest wind after the rain, rather novel and agreeable, blowing off some apple blossoms. The grass, especially the meadow-grasses, are seen to wave distinctly, and the shadows of the bright fair-weather cumuli are sweeping over them like the shades of a watered or changeable stuff, — June-like. The grass and the tender leaves, refreshed and expanded by the rain, are peculiarly bright and yellowish-green when seen in a favorable light.

This occurrence of pretty strong southwest winds near the end of May, three weeks after the colder and stronger winds of March and April have died away, after the first heats and perhaps warm rain, when the apple trees and upland buttercups are in bloom, is an annual phenomenon. Not being too cold, they are an agreeable novelty and excitement now, and give life to the landscape.

Sorrel just begins to redden some fields.

I have seen for a week a smaller and redder butterfly

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than the early red or reddish one. Its hind wings are chiefly dark or blackish. It is quite small. The forward wings, a pretty bright scarlet red with black spots.

See a green snake, a very vivid yellow green, of the same color with the tender foliage at present, and as if his colors had been heightened by the rain.

White thorn in bloom at Tarbell's Spring, considerable of it; possibly a little yesterday.

What they say of the 19th of April, '75, — that "the apple trees were in bloom and grass was waving in the fields," — could only have been said within a week past this early year. This is the season when the meadow-grass is seen waving in the wind at the same time that the shadows of clouds are passing over it.

At the Ministerial Swamp I see a *white* lady's-slipper almost out, fully grown, with red ones.

By the path-side near there, what I should call a veery's nest with four light-blue eggs, but I have not heard the veery note this year, only the *yorrick*. It is under the projecting edge or bank of the path, — a large mass of fine grass-stubble, pine-needles, etc., but not leaves, and lined with pine-needles.

In Second Division Meadow, *Eriophorum polystachyon*, apparently two or three days, though only six or eight inches high at most. The Second Division rush is not quite in bloom yet. The panicle is quite fresh, one eighth to one quarter inch long, but the sepals are not green but light-brown. Is it a new species?

Going along the Second Division road, this side the brooks, where the woods have been extensively cut off, I smell now, the sun having come out after the rain of

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the morning, the scent of the withered pine boughs which cover and redden the ground. They part with their tea now.

You see now, on all sides, the gray-brown, lumbering woodchucks running to their subterranean homes. They are but poor runners, and depend on their watchfulness and not being caught far from their burrows.

The reddish-brown loosestrife is seen springing up in dry woods, six or eight inches high.

Now, sitting on the bank at White Pond, I do not see a single shad-bush in bloom across the pond, where they had just fairly begun on the 6th. The small *Populus grandidentata*, with their silvery leafets not yet generally flattened out, represent it there now, — are the most like it. I see some tall shad-bush without the reddish leaves — what I think I have thought a variety of the *Botryapium* — still well in bloom apparently with the *oblongifolium*. Is it the last?

The largest shrub oak that I have noticed grows by the north side of the White Pond road, not far from the end of the lane. It measures sixteen inches in circumference at two feet from the ground, and looks like a Cape Cod red oak in size and form, — a scraggly small tree (*maybe* a dozen feet high).

Pyrus arbutifolia out. Beach plum by Hubbard's wall, perhaps a day. Lilac, the 17th. The fresh shoots of the white pine are now perpendicular whitish marks about two inches long, about six inches apart on a glaucous-green ground.

I measure a bear's foot which F. Monroe brought

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from Vermont, where it was killed in a trap within a few years. It was formed very much like a boy's foot, with its five toes, and the solid part measured seven and one half inches in length by three and three quarters. The claws extended one inch further, and *with the fur* (not allowing anything for shrinkage all this while) it must have made a track nine by four and a half inches at least. The fur came down thick all around to the ground. There was a seam or joint across the middle of the sole.

River raised one and a half inches at night by rain of forenoon, — *i. e.* five and a half inches below summer level.

May 20. A strong, cold west wind. 60° at 2 P. M.

To Walden.

The *Carex vulgaris* is more glaucous than the *stricta*. Mouse-ear down at last.

Scirpus planifolius — how long? — apparently in prime in woods about the bottom of the long south bay of Walden, say two rods southwest.

Judging from Hind's Report of his survey of the region between the Assiniboine and Saskatchewan Rivers, the prevailing trees — and they are small — are aspens and willows, which, if let alone, *i. e.*, if the prairies were not burned by the Indians, might at last make a soil for nobler forests. No wonder that these small trees are so widely dispersed; their abundant fine and light seed, being buoyed up and wafted far through the atmosphere, speedily clothe the burnt tracts of British America. Heavy-seeded trees are slow to spread

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themselves, but both air and water combine to transport the seeds of these trees.

May 21. Cold, — at 11 A. M. 50°; and sit by a fire. At 12 it begins to rain.

P. M. — To Cambridge.

All vegetation is refreshed by the rain. The grass appears to stand perfectly erect and on tiptoe, several inches higher, all [at] once in every field, the fresh green prevailing over the brown ground in every field. The color of the new leaves is surprising. The birches by the railroad, as I am whirled by them in the cars, flash upon me yellow as gamboge, their leaves more like flowers than foliage.

Wintergreen had started the 18th at least. Noticed the shadows of apple trees yesterday.

May 22. Another cold and wet day, requiring fire. Ceases to rain at midday, but continues foul. The principal rain was during last night, and was quite considerable.

C. hears a cuckoo, and appears, by his account, to have seen the *Sylvia maculosa*.

I see the effects of frost (probably the morning of the 21st) on squashes that sowed themselves.

May 23. 6 A. M. — To Junction.

River four and one sixth inches below summer level, having risen about three inches since the morning of the 19th.

See hopping along the limbs of a black willow and inspecting its leafets for insects, in all positions, often

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head downward, the *Sylvia striata*, black-poll warbler. Black crown or all top of head; a broad white space along side-head and reaching less distinctly over the neck, in a ring; beneath this, from base of mandibles, a streak of black, becoming a stream or streams of black spots along the sides; beneath white; legs yellow; back above slaty-brown, streaked with black; primaries yellowish-dusky, with two white bars or marks; inner tail-feathers more or less white; tail forked; bill black. Not particularly lively. The female is said to be considerably different. This at first glance was a chickadee-like bird. It was rather tame.

I distinguish well the red-eye and the yellow-throat vireo at the Island. It would not be easy to distinguish them always by the note, and I may have been mistaken sometimes, and before this year, in speaking of the yellow-throat vireo. The red-eye sings as slightly and feebly here now as the other. You can see these here to advantage now on the sunny side of the woods, the sun just bursting forth in the morning after the rain, for they [are] busily preening themselves, and, though incessantly moving, their heads and bodies remain in the same spot.

Myrtle-bird here still.

Notice the first lint from new leafets, evidently washed off by the rain, and covering the water like dust.

P. M. — 69. By boat to Ball's Hill.

Say the sweet-scented vernal grass is in its prime. Interrupted fern fruit probably a day or two, and cinnamon, say the same or just after.

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I see on the white maples, and afterward running along the shore close to the water, at different times, three or four water-thrushes (water wagtails, *Turdus Noveboracensis*). By its lurking along the waterside it might be mistaken by some at first for the song sparrow. It is considerably like the golden-crowned thrush, but it has a distinct buffish-white line over the eye and the breast and sides distinctly striped with dark. All above uniform olive-brown. It may be distinguished at a distance from a sparrow by its wagging motion, teetering on its perch. It persistently runs along the shore, peetweet- and song-sparrow-like, running like a rail around the tussocks and other obstacles and appearing again at the water's edge. It was not very shy. We very easily kept along two rods off it, while it was amid the button-bushes.

Started up two (probably) *Totanus solitarius* (?), (possibly small yellow-legs ? ? ?). They utter a faint yellow-leg note, rather than peetweet note, *viz. phe, phe, pheet pheet pheet.* Are not shy; stand still [on] or beside a tussock to be looked at. Have peculiarly long, slender, curving wings. Fly like a peetweet, but are considerably larger and apparently uniformly dark-brown above. The belly and vent very bright white; breast (upper part) grayish-brown. When they flew from me saw considerable white, apparently on tail-coverts or sides of tail. Watched one still within three rods, with glass. There was a little speckling of whitish perhaps amid the brown above. I think they were too small for the lesser yellow-legs.

Eleocharis palustris, say three or four days.

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Critchicrotches some two or three days; now tender to eat.

How agreeable and surprising the peculiar fragrance of the sweet flag when bruised! That this plant alone should have extracted this odor surely for so many ages each summer from the moist earth!

The pipes in the Great Meadows now show a darker green amid the yellowish of the sedges, like the shadow of a passing cloud. From a hilltop half a mile off you can easily distinguish the limits of the pipes by their dark green. They do not terminate abruptly, but are gradually lost in the sedge.

There is very little white maple seed this year, so that I cannot say surely how far advanced it is. What I notice appears to be fully grown, but is on the trees yet, always surprisingly large, like the wings of some lusty moth. Possibly it ripens with mouse-ear.

I get sight for a moment of a large warbler on a young oak, — only the under side, which is a clear bright lemon-yellow, *all* beneath, with a sort of crescent of black spots on the breast. Is it not the *Sylvia pardalina*? Methinks it was a rather dark brown above.[1]

The quarter-grown red oak leaves between you and the sun, how yellow-green!

Now, if you look over our Great Meadow from Ball's Hill, in a warm, fair day like this, you will receive the same impression as from the English grass fields in the middle of June, the sedges are so much more dense and forward. I mark the large white maples, now conspicuous and pretty densely leaved,

[1] *Vide* 28th.

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stand up over the green sea on this edge of the river, so still, with each a speck of shade at its base, as in the noon of a summer day, and a dark *line* merely of shadow runs along at the base of the hill on the south of the meadow, — the June shadows beginning here. A green canopy held still above the already waving grass. It reminds you of warm, still noons, high grass, and the whetting of the scythe.

Most of the corn is planted.

Distinguish plainly a swamp sparrow (two to-day) by the riverside, a peculiarly glossy deep-chestnut crown, ash side-head and throat, and a dark or black line through the eye.

I find, in skunk hedge below Flint's, *Carex rosea*, not long, say three or four days. I should have thought it *C. stellulata*, but it is plainly staminate above, fertile below.[1] Also *C. gracillima*, same place, apparently four or five days.

River at 6 P. M. about one and two thirds inches below summer level; risen some two and a half inches since 6 A. M.

Notice the flags eaten off, probably by musquash.

May 24. 6 A. M. — Water fallen about one inch.

P. M. — To Cliffs.

I see in a ditch a painted turtle nibbling the edge of a frost-bitten yellow lily pad (in the water), which has turned white. Other pads have evidently been nibbled by him, having many scallops or notches in their edges, just the form of his jaws.

[1] Also seen at calamint wall, Annursnack, June 10th.

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That earliest little slender-leaved panic grass will bloom, say in a day (if not now).

About a rod from the west spring on Fair Haven Hill, by the wall, stands an English cherry tree three feet high. I think that this was planted there by a bird which came to the spring for water after feeding on cherries in the town (?), for I frequently find the stones dropped in the springs.

Those red cedars now ten feet high or more on Fair Haven Hill have all the regular form of the leaf, except a small bunch or two in their midst, yet I remember that when four or five feet high they had only the acetate [*sic*; = acicular ?] form. It seems, then, that you will see small trees which have only leaves of the acetate [*sic*] form, but when they get larger they have leaves of the usual form.

Looking into the northwest horizon, I see that Wachusett is partially concealed by a haze. It is suddenly quite a cool southeast wind. (When I started, at two, it was also southeast, and thermometer 69.) This is one of the values of mountains in the horizon, that they indicate the state of the atmosphere. I should not have noticed this haze if I had not looked toward the mountains.

How perfectly new and fresh the world is seen to be, when we behold a myriad sparkles of brilliant white sunlight on a rippled stream! So remote from dust and decay, more bright than the flash of an eye.

I noticed the first shadows of hickories, — not dense and dark shade, but open-latticed, a network of sun and shadow. Just begun to describe their semicircles on the north sides of the trees. The first demonstrations that

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it will shade the ground, unobserved as yet by the cows in the pasture.

I saw yesterday a herd of cows standing in the water of the river, though it was rather cold water. They begin their bathing about the same time that we do. They splash about till they get into a convenient place, about up to their bellies, and chew the cud there.

As I sit just above the northwest end of the Cliff, I see a tanager perched on one of the topmost twigs of a hickory, holding by the tender leafets, now five inches long, and evidently come to spy after me, peeping behind a leafet. He is between me and the sun, and his plumage is incredibly brilliant, all aglow. It is our highest-colored bird, — a deep scarlet (with a yellower reflection when the sun strikes him), in the midst of which his pure-black wings look high-colored also. You can hardly believe that a living creature can wear such colors. A hickory, too, is the fittest perch for him.

Hear a wood pewee.

A pincushion gall on a black shrub oak (not yet crimson-spotted). Yesterday saw oak-apples (now yellow) on a black shrub oak, two-thirds grown.

May 25. Frost last night in low ground.

The yards are now full of little spires of June-grass, with a brownish tinge but not quite in flower, trembling in the breeze. You see a myriad of fine parallel perpendicular stems about a foot high against the lighter green ground. It has shot up erect suddenly, and gives a new aspect to our yards. The earth wears a new and greener vest.

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The trees I notice which look late now are not only locusts and Holbrook Hollow aspens but tupelos, white ash, swamp white oaks, buttonwoods, and some elms, and even some red maples.

P. M. — To Gowing's Swamp and Copan.

Quite warm, and I see in the east the first summer shower cloud, a distinct cloud above, and all beneath to the horizon the general slate-color of falling rain, though distant, deepest in the middle.

The scheuchzeria out some days apparently, but only in the open pool in the midst of the swamp.

I see half a dozen heads of tortoises above the sphagnum there in the pool, and they have vermilion spots on the neck or hindhead, — a sort of orange vermilion. Are they the yellow-spot or wood tortoise?

The European cranberry budded to bloom and grown one inch. Comandra out, not long. Red and white oak leafets handsome now.

Pe-pe heard, and probably considerably earlier.

It is remarkable that the aspen on Holbrook's road, though in most places it is the earliest indigenous tree to leaf, is the very latest, and the buds are hardly yet swollen at all. Can it be a distinct variety?

See the effect of frost on the sweet-fern either this morning or the 21st.

It evidently rains around us, and a little falls here, and the air is accordingly cooled by it, and at 5 P. M. the toads ring loud and numerously, as if invigorated by this little moisture and coolness.

Euphorbia cyparissias. Cherry-birds.

7 P. M. — River one inch below summer level.

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May 26. Overcast, rain-threatening; wind northeast and cool.

9 A. M. — To Easterbrooks Country.

Carex lanuginosa, Smith's shore, say three or four days. *C. pallescens* (?), long-stalked, staminate, Channing's shore, high. *C. pallescens* var. *undulata*, rather spreading, common, as in Clark's field from opposite my old house. *C. polytrichoides* well out, say a few days, Botrychium Swamp. Melons have peeped out two or three days. Our pink azalea.

5 P. M. — River five eighths of an inch below summer level.

May 27. Fire in house again.

The *Sylvia striata* are the commonest bird in the street, as I go to the post-office, for several days past. I see six (four males, two females) on one of our little fir trees; are apparently as many more on another close by. The white bars on the wings of both sexes are almost horizontal. I see them thus early and late on the trees about our houses and other houses the 27th and 28th and 29th also, — peach trees, etc., but especially on the firs. They are quite tame. I stand within seven or eight feet while they are busily pecking at the freshly bursting or extending glaucous fir twigs, deliberately examining them on all sides, and from time to time one utters a very fine and sharp, but faint *tse tse, tse tse, tse tse*, with more or less of these notes. I hear the same in the woods. Examining the freshly starting fir twigs, I find that there are a great many lice or aphides amid the still appressed leafets or leaves of the buds, and

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no doubt they are after these. Occasionally a summer yellowbird is in company with them, about the same business. They, the black-polls, are very numerous all over the town this spring. The female has not a black, but rather, methinks, a slate-colored crown, and is a very different bird, — more of a yellowish brown.

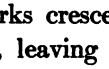
Eleocharis acicularis, not long, on the low exposed bank of the river; if [?] it is that that greens the very low muddy banks.

J. Farmer found a marsh hawk's nest on the 16th, — near the Cooper's hawk nest, — with three fresh eggs.

May 28. P. M. — To Deep Cut.

Carex debilis, not long.

Along the edge of Warren's wood east of the Cut, see not only the chestnut-sided warbler but the splendid *Sylvia pardalina*. It is a bright yellow beneath, with a broad black stripe along each side of the throat, becoming longish black marks crescentwise on the fore part of the breast, leaving a distinct clear bright-yellow throat, and all the rest beneath bright-yellow; a distinct bright-yellow ring around eye; a dark bluish brown apparently all above; yellowish legs. Not shy; on the birches. Probably saw it the 23d.



I see apparently a vireo, much like the red-eye (no yellow throat), with the white or whitish line above eye but a head differently formed, *i. e.*, a crest erectile at will and always prominent.

Solid white fog over meadow in evening.

I notice to-night that the potamogetons have just reached the surface of the river and begun to spread

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out there. The surface of the water in shallow places begins to be interrupted or dimpled with small brown leaves. First, from the 9th to 13th the first pads began [to] spread, and the pontederia, etc., showed themselves. Now the appearance of the potamogetons marks a new era in the vegetation of the river, the commencement of its summer stage. Its spring ends now; its time of freshet (generally) is over.

The river is now some three inches below summer level.

May 29. P. M. — After hawks with Farmer to Easterbrooks Country.

He tells me of a sterile bayberry bush between his house and Abel Davis, opposite a ledge in the road, say half a dozen rods off in the field, on the left, by a brook.

Hearing a warbling vireo, he asked me what it was, and said that a man who lived with him thought it said, "Now I have caught it, O how it is sweet!" I am sure only of the last words, or perhaps, "Quick as I catch him I eat him. O it is very sweet."

Saw male and female wood tortoise in a meadow in front of his house, — only a little brook anywhere near. They are the most of a land turtle except the box turtle.

We proceeded [to] the Cooper's hawk nest[1] in an oak and pine wood (Clark's) north of Ponkawtasset. I found a fragment [of] one of the eggs which he had thrown out. Farmer's egg, by the way, was a dull or dirty white, *i. e.* a rough white with large dirty spots, perhaps in the grain, but not surely, of a regular oval

[1] *Vide* 17th.

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form and a little larger than his marsh hawk's egg. I climbed to the nest, some thirty to thirty-five feet high in a white pine, against the main stem. It was a mass of bark-fibre and sticks about two and a half feet long by eighteen inches wide and sixteen high. The lower and main portion was a solid mass of fine bark-fibre such as a red squirrel uses. This was surrounded and surmounted by a quantity of dead twigs of pine and oak, etc., generally the size of a pipe-stem or less. The concavity was very slight, not more than an inch and a half, and there was nothing soft for a lining, the bark-fibres being several inches beneath the twigs, but the bottom was floored for a diameter of six inches or more with flakes of white oak and pitch pine bark one to two inches long each, a good handful of them, and on this the eggs had lain. We saw nothing of the hawk. This was a dozen rods south of the oak meadow wall.

Saw, in a shaded swamp beyond, the *Stellaria borealis*, still out, — large, broadish leaves.

Some eighteen feet high in a white pine in a swamp in the oak meadow lot, I climbed to a red squirrel's nest. The young were two-thirds grown, yet feeble and not so red as they will be. One ran out and along a limb, and finally made off into another tree. This was a mass of rubbish covered with sticks, such as I commonly see (against the main stem), but not so large as a gray squirrel's.

We next proceeded to the marsh hawk's nest from which the eggs were taken a fortnight ago and the female shot.[1] It was in a long and narrow cassandra

[1] *Vide* June 4th.

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swamp northwest of the lime-kiln and some thirty rods from the road, on the side of a small and more open area some two rods across, where were few if any bushes and more [?] sedge with the cassandra. The nest was on a low tussock, and about eighteen inches across, made of dead birch twigs around and a pitch pine plume or two, and sedge grass at bottom, with a small cavity in the middle.

The female was shot and eggs taken on the 16th; yet here was the male, hovering anxiously over the spot and neighborhood and scolding at us. Betraying himself from time to time by that peculiar *clacking* note reminding you of a pigeon woodpecker. We thought it likely that he had already got another mate and a new nest near by. He would not quite withdraw though fired at, but still would return and circle near us. They are said to find a new mate very soon.

In a tall pine wood on a hill, say southwest of this, or northwest of Boaz's Lower Meadow, I climbed to a nest high in a white pine, apparently a crow's just completed, as it were on a squirrel's nest for a foundation, but finished above in a deep concave form, of twigs which had been gnawed off by the squirrel.

In another white pine near by, some thirty feet up it, I found a gray squirrel's nest, with young about as big as the red squirrels were, but yet blind. This was a large mass of twigs, leaves, bark-fibre, etc., with a mass of loose twigs on the top of it, which was conical. Perhaps the twigs are piled on the warmer part of the nest to prevent a hawk from pulling it to pieces.

I have thus found three squirrels' nests this year, two

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gray and one red, in these masses of twigs and leaves and bark exposed in the tree-tops and not in a hollow tree, and methinks this is the rule and not the exception.

Farmer says that he finds the nests or holes or forms of the gray rabbit in holes about a foot or a foot and a half deep, made sideways into or under a tussock, especially amid the sweet-fern, in rather low but rather open ground. Has found seven young in one. Has found twenty-four eggs in a quail's nest.

In many places in the woods where we walk to-day we notice the now tender branches of the brakes eaten off, almost in every case, though they may be eighteen or more inches from the ground. This was evidently done by a rabbit or a woodchuck.

The wild asparagus beyond Hunt's Bridge will apparently open in two days.[1]

C. has seen to-day an orange-breasted bird which may be the female (?) Blackburnian warbler.

The leaves now conceal the warblers, etc., considerably. You can see them best in white oaks, etc., not maples and birches.

I hear that there was some frost last night on Hildreth's plain; not here.

On the 28th, the *latest* trees and shrubs start thus in order of leafing:[2] —

[1] Front of Whiting's shop, the 30th.

[2] June 3d. The deciduous trees which look late are, *in order of lateness*, bayberry latest, button-bush, poison-dogwood, black ash, buttonwood (mountain rhus, *Vaccinium dumosum*, and Holbrook aspen not being seen). The locust is pretty green. The first three look dead at a little distance, but the bayberry showed growth (including flower-buds) before button-bush. *Vide* June 4th.

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1.	Locust	
2.	Dangle-berry	21st
3.	Mountain rhus	22d
4.	Poison-dogwood	23d
5.	Black spruce	23d
6.	Black ash	24th
7.	Button-bush	26th
8.	Hemlock	27th
9.	Bayberry	28th
10.	*Vaccinium dumosum* [1]	
11.	Holbrook aspens	

I hear from vireos (probably red-eyes) in woods a fine harsh note, perhaps when angry with each other.

May 30. P. M. — To Second Division.

A washing southwest wind. George Melvin said yesterday that he was still grafting, and that there had been a great blow on the apple trees this year, and that the blossoms had held on unusually long. I suggested that it might be because we had not had so much wind as usual.

On the wall, at the brook behind Cyrus Hosmer's barn, I start a nighthawk within a rod or two. It alights again on his barn-yard board fence, sitting diagonally. I see the white spot on the edge of its wings as it sits. It flies thence and alights on the ground in his corn-field, sitting flat, but there was no nest under it. This was unusual. Had it not a nest near by?

I observed that some of the June-grass was white and withered, being eaten off by a worm several days ago, or considerably before it blossoms. June-grass fills the field south of Ed. Hosmer's ledge by the road, and gives

[1] June 13th, grown half an inch to an inch.

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it now a very conspicuous and agreeable brown or ruddy(?)-brown color, about as ruddy as chocolate, perhaps. This decided color stretching afar with a slightly undulating surface, like a mantle, is a very agreeable phenomenon of the season. The brown panicles of the June-grass now paint some fields with the color of early summer.

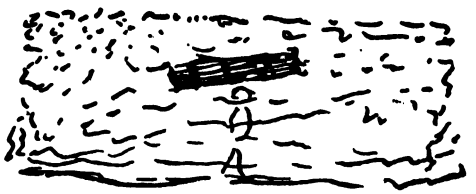
Front-yard grass is mowed by some. The stems of meadow saxifrage are white now. The *Salix tristis* generally shows its down now along dry wood-paths.

The *Juncus filiformis* not out yet, though some panicles are grown nearly half an inch. Much of it seems to be merely chaffy or effete, but much also plumper, with green sepals and minute stamens to be detected within. It arises, as described, from matted running rootstocks. Perhaps will bloom in a week.

A succession of moderate thunder and lightning storms from the west, two or three, an hour apart.

Saw some devil's-needles (the first) about the 25th.

I took refuge from the thunder-shower this afternoon by running for a high pile of wood near Second Division, and while it was raining, I stuck three stout cat-sticks into the pile, higher than my head, each a little lower than the other, and piled large flattish wood on them and tossed on dead pine-tops, making a little shed, under which I stood dry.



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May 31. Rained hard during the night. At 6 P. M. the river has risen to half an inch below summer level, having been three to four inches below summer level yesterday morning. I hear the sprayey note of toads now more than ever, after the rain.

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VII

JUNE, 1860

(ÆT. 42)

June 1. 2 P. M. — River $1\frac{3}{8}$ *above* summer level.
6 P. M. $1\frac{6}{8}$ " " "

Farmer has heard the quail a fortnight. Channing yesterday. The barberry flower is now in prime, and it is very handsome with its wreaths of flowers. Many low blackberry flowers at Lee's Cliff. June-grass there well out. Krigia, how long?

Breams' nests begun at Hubbard's Grove shore. They have carefully cleaned the bottom, removing the conferva, small weeds, etc., leaving the naked stems of some coarse ones, as the bayonet rush, bare and red.

Young Stewart tells me that when he visited again that gray squirrel's nest which I described about one month ago up the Assabet, the squirrels were gone, and he thought that the old ones had moved them, for he saw the old about another nest. He found another, similar nest with three dead blind gray squirrels in it, the old one probably having been killed. This makes three gray squirrels' nests that I have seen and heard of (*seen* two of them) this year, made thus of leaves and sticks open in the trees, and I hear of some more similar ones found in former years, so that I think this mode of nesting their young may be the rule with them

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here. Add to this one red squirrel's nest of the same kind.

June 2. Saturday. The past has been Anniversary Week in Boston, and there have been several rainy or cloudy days, as the 30th, afternoon and especially night, and 31st, and night of June 1st. Cleared up at noon to-day. This Anniversary Week is said to be commonly rainy.

P. M. — To river behind Hubbard's Grove.

Red clover first seen. A boy brought me yesterday a nest with two Maryland yellow-throats' eggs and two cowbirds' eggs in it, and said that they were all found together. Saw a pigeon yesterday; a turtle dove to-day.

You see now, in suitable shallow and warm places where there is a sandy bottom, the nests of the bream begun, — circular hollows recently excavated, weeds, confervæ, and other rubbish neatly removed, and many whitish root-fibres of weeds left bare and exposed.

There is a lively and washing northwest wind after the rain, it having cleared up at noon. The waves are breaking on this shore with such a swash that sometimes I cannot distinguish the bream poised over her nest within ten feet of me. The air is cleansed and clear, and therefore the waves, as I look toward the sun, sparkle with so bright and white a light, — so peculiarly fresh and bright. The impurities have all come down out of the air.

The yellow Bethlehem-star is pretty common now. The poison-dogwood is so late, and has such a proportion of thick gray stems, that at a little distance

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they look like dead trees amid the green birches and alders.

8 P. M. — Up Assabet.

The river is four inches above summer level.

A cool evening. A cold, white twilight sky after the air has been cleared by rain, and now the trees are seen very distinctly against it, — not yet heavy masses of verdure, but a light openwork, the leaves being few and small yet, as regularly open as a sieve.

Cool as it is, the air is full of the ringing of toads, peeping of hylodes, and purring of (probably) *Rana palustris*. The last is especially like the snoring of the river. In the morning, when the light is similar, you will not hear a peeper, I think, and scarcely a toad. Bats go over, and a kingbird, very late. Mosquitoes are pretty common. Ever and anon we hear the stake-driver from a distance. There is more distinct sound from animals than by day, and an occasional bullfrog's trump is heard. Turning the island, I hear a very faint and slight screwing or working sound once, and suspect a screech owl, which I after see on an oak. I soon hear its mournful scream, probably to its mate, not loud now, but, though within twenty or thirty rods, sounding a mile off. I hear it louder from my bed in the night.

Water-bugs dimple the surface now quite across the river, in the moonlight, for it is a full moon. The evergreens are very dark and heavy.

Hear the sound of Barrett's sawmill, at first like a drum, then like a train of cars. The water has been raised a little by the rain after the long drought, and so

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he [is] obliged to saw by night, in order to finish his jobs before the sun steals it from him again.

June 3. 6 A. M. — River three and three sixteenth inches above summer level; *i. e.*, the river has begun to fall within twenty-four hours and less after the rain ceased.

2 P. M. — To bayberry.

These are the clear breezy days of early June, when the leaves are young and few and the sorrel not yet in its prime. Perceive the meadow fragrance.

Am surprised to [see] some twenty or more crows in a flock still, cawing about us.

The roads now strewn with red maple seed. The pines' shoots have grown generally from three to six inches, and begin to make a distinct impression, even at some distance, of white and brown above their dark green. The foliage of deciduous trees is still rather yellow-green than green.

There are in the Boulder Field several of the creeping juniper which grow quite flat on the ground, somewhat like the empetrum, most elevated in the middle.

Not only brakes, many of them tall, and branching two feet at least from the ground, have their branches nibbled off, but the carrion-flower has very commonly lost its leaves, either by rabbits or woodchucks.

Tree-toads heard. See a common toad three quarters of an inch long.

There are various sweet scents in the air now. Especially, as I go along an arbor-vitæ hedge, I perceive a very distinct fragrance like strawberries from it.

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Young Shoots on Pitch Pine

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June 4. Leave off flannel. Yesterday and to-day uncomfortably warm when walking.

The foliage of the elms over the street impresses me as dense and heavy already, — comparatively.

The black-poll warblers (*Sylvia striata*) appear to have left, and some other warblers, if not generally, with this first clear and bright and warm, peculiarly June weather, immediately after the May rain. About a month ago, after the strong and cold winds of March and April and the (in common years) rain and high water, the ducks, etc., left us for the north. Now there is a similar departure of the warblers, on the expansion of the leaves and advent of yet warmer weather. Their season with us, *i. e.* those that go further, is when the buds are bursting, till the leaves are about expanded; and probably they follow these phenomena northward till they get to their breeding-places, flying from tree to tree, *i. e.* to the next tree which contains their insect prey.

2 P. M. — To Fair Haven Hill.

They began to carry round ice about the 1st.

What I called *Carex conoidea* in '59, was seen June 2d this year in fruit, and may have flowered with *C. pallescens*. C. Hubbard's first meadow, south side of Swamp Brook willows. *Glyceria fluitans*, say two or three days, Depot Brook.

I see the great blue devil's-needles coasting along the river now, and coupled.

Carex retrorsa (much of it going to seed), Hubbard's Bath shore, say ten days. Has the general aspect of *pallescens*.

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At Staples Meadow I observe that a great deal of the pitcher-plant is quite dry, dead, and slate-colored, with some green flower-buds pushing up, perhaps. I think it was thus half killed by the drought of April and May.

The clear brightness of June was well represented yesterday by the buttercups (*Ranunculus bulbosus*) along the roadside. Their yellow so glossy and varnished within; but not without. Surely there is no reason why the new butter should not be yellow now.

The time has come now when the laborers, having washed and put on their best suits, walk into the fields on the Sabbath, and lie on the ground at rest.

Aphides on alders, which dirty your clothes with their wool as you walk.

A catbird has her nest in our grove. We cast out strips of white cotton cloth, all of which she picked up and used. I saw a bird flying across the street with so long a strip of cloth, or the like, the other day, and so slowly, that at first I thought it was a little boy's kite with a long tail. The catbird sings less now, while its mate is sitting, or maybe taking care of her young, and probably this is the case with robins and birds generally.

At the west spring of Fair Haven Hill I cast a bit of wood against a pitch pine in bloom (perhaps not yet in prime generally), and I see the yellow pollen-dust blown away from it in a faint cloud, distinctly for three rods at least, and gradually rising all the while (rising five or six feet perhaps).

I hear that the nest of that marsh hawk which we saw on the 29th (*q. v.*) has since been found with five

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eggs in it. So that bird (male), whose mate was killed on the 16th of May, has since got a new mate and five eggs laid.

One asks me to-day when it is that the leaves are fully expanded, so that the trees and woods look dark and heavy with leaves. I answered that there were leaves on many if not on most trees already fully expanded, but that there were not many on a tree, the shoots having grown only some three inches, but by and by they will have grown a foot or two and there will be ten times as many leaves. Each tree (or most trees) now holds out many little twigs, some three inches long, with two or three fully expanded leaves on it, between us and the sun, making already a grateful but thin shade, like a coarse sieve, so open that we see the fluttering of each leaf in its shadow; but in a week or more the twigs will have so extended themselves, and the number of fully expanded leaves be so increased, that the trees will look heavy and dark with foliage and the shadow be dark and opaque, — a gelid shade.

Hazy, and mountains concealed.

I notice to-day, for example, that most maple, birch, willow, alder, and elm leaves are fully expanded, but most oaks and hickories, ash trees, etc., are not quite.

You may say that now, when most trees have fully expanded leaves and the black ash fairly shows green, the leafy season has fairly commenced. (I see that I so called it May 31 and 27, 1853.)

June 5. A. M. — Northeast wind and rain, steady rain.

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Hemlock bead-work handsome, but hardly yet large ones.

When I open my window at night I hear the peeping of hylodes distinctly through the rather cool rain (as also some the next morning), but not of toads; more hylodes than in the late very warm evenings when the toads were heard most numerously. The hylodes evidently love the cooler nights of spring; the toads, the warm days and nights of May. Now it requires a cool (and better if wet) night, which will silence the toads, to make the hylodes distinct.

June 6. Rain still (the second day), — clears up before night, — and so cool that many have fires.

The grass began to look fairly green or summer-like generally about the 1st.

6.30 P. M. — On river, up Assabet, after the rain.

The water has risen to eight and three quarters inches above summer level, and is rising fast. But little rain has fallen this afternoon.

The hemlocks generally have not grown quite enough to be handsomest, but the younger and lower growths are seen now in the dark and cavernous recesses, very fair with so many bright eyes on their green.

Saw those swarms of black moths fluttering low over the water on the 2d and to-night.

The *Salix nigra* is now getting stale. It is a very densely flowered willow, perhaps the most so of any. The sterile ones seen afar (even by moonlight on the 2d) are dense masses of yellow (now more pale) against the

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green of trees in the rear. They have but little leafiness themselves as yet.

Not only the foliage begins to look dark and dense, but many ferns are fully grown, as the cinnamon and interrupted, perfectly recurved over the bank and shore, adding to the leafy impression of the season. The *Osmunda regalis* looks later and more tender, reddish-brown still. It preserves its habit of growing in circles, though it may be on a steep bank and one half the circle in the water.

The new leaves are now very fair, pure, unspotted green, commonly more or less yellowish. The swamp white oak leaf looks particularly tender and delicate. The red maple is much harder and more matured. Yet the trees commonly are not so densely leaved but that I can see through them; *e. g.*, I see through the red oak and the bass (below Dove Rock), looking toward the sky. They are a mere network of light and shade after all. The oak may be a little the thickest. The white ash is considerably thinner than either.

The grass and foliage are particularly fresh and green after the two days of rain, and we mark how the darkening elms stand along the highways. Like wands or wreaths seen against the horizon, they streak the sky with green.

How full the air of sound at sunset and just after, especially at the end of a rain-storm! Every bird seems to be singing in the wood across the stream, and there are the hylodes and the sounds of the village. Beside, sounds are more distinctly heard.

Ever and anon we hear a few *sucks* or strokes from

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the bittern, the stake-driver, wherever we lie to, as if he had taken the job of extending all the fences into the river to keep cows from straying round. We hear but three or four toads in all, to-night, but as many hylodes as ever. It is too cool, both water and air (especially the first), after the rain, for the toads. At 9 A. M. it is 58. This temperature now, after a rain-storm has cooled the water, will silence the toads generally but make the hylodes more musical than ever.

As the light is obscured after sunset, the birds rapidly cease their songs, and the swallows cease to flit over the river. And soon the bats are seen taking the places of the swallows and flying back and forth like them, and commonly a late kingbird will be heard twittering still in the air. After the bats, or half an hour after sunset, the water-bugs begin to spread themselves over the stream, though fifteen minutes earlier not one was seen without the pads, — now, when it is difficult to see them or the dimples they make, except you look toward the reflected western sky. It is evident that they dare not come out thus by day for fear of fishes, and probably the nocturnal or vespertinal fishes, as eels and pouts, do not touch them. I think I see them all over Walden by day, and, if so, it may be because there is not much danger from fishes in that very deep water. I wonder if they spread thus over the whole breadth of Flint's Pond. It would be a measure of the size of a lake to know that it was so large that these insects did not cross it.

See to-night three dead (fresh) suckers on the Assabet. What has killed them?

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June 7. 6 A. M. — River nine and fifteen sixteenths above summer level; has risen one and three sixteenths inches since last evening at 6.30. Thus, it having rained two days most of the time, though not much the last afternoon, the river had risen some six inches at the end of the last afternoon, by the time it cleared up, and only some one and a quarter inches in the next twelve hours of night.

P. M. — To Gowing's Swamp and Copan.

Red maple seed is still in the midst of its fall; is blown far from the trees.

This is a southwest-breezy day, after the rain of the last two days. There is on the whole a fresh and breezy coolness in June thus far, perhaps owing to the rains and the expanded foliage.

White clover already whitens some fields and resounds with bees.

Am surprised to find that in that frosty Holbrook Road Hollow (call it Frosty Poplar Hollow) none of the poplars (*P. tremuliformis*) less than ten feet high (or parts of others less than ten feet above the ground) in the bottom of the hollow have burst their buds yet, making this which in some localities is perhaps the earliest conspicuous tree, in others the latest to leaf. Also the shrub oaks are but just begun to leaf here, and many maples and white birches have but lately leafed, having yet very small and tender leaves. These poplars, and I think the oaks (for I detect no dead and withered leafets on them), etc., have here acquired a new habit, and are retarded in their development, just as if they grew in a colder latitude, like the plants by the snow in Tucker-

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man's Ravine. They have not put forth and then been frost-bitten, as in most hollows, but the spring has come later to them. The poplars generally look quite dead still amid the verdure that surrounds the hollow; only those that rise about ten feet are unfolded at the top. The amount of development is a matter of elevation here. Generally speaking, all poplar buds above a certain level have burst, and all below are inert. The line of separation is very distinct now, because the tops of the tallest are already leafed out and are green. This level line extends to the hillsides all around, and above it all trees are leafed out. This is true of the shrub oaks also, except that a great many of them which stand much higher have already leafed and been frost-bitten, which makes them look about as late as those which apparently have not leafed. This hollow seems to be peculiar, — a dry depression between Beck Stow's and the Great Meadows, — to be steadily cold and late, and not warm by day so that the buds burst and are then killed by frost, as usual. Perhaps it is not so much a frosty hollow as a cold one. It is most open north and south.

Standing at Holbrook's barrel spring, a female chestnut-sided warbler hops within four feet of me, inquisitively holding its head down one side to me and peeping at me.

Seeing house-leek on several rocks in the fields and by roadside in the neighborhood of Brooks Clark's, Farmer told me that it was the work of Joe Dudley, a simple fellow who lives at one of the Clarks; that, though half-witted, he knew more medicinal plants

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than almost anybody in the neighborhood. Is it necessary that the simpler should be a simpleton?

I noticed rye (winter rye) just fairly begun to bloom, May 29th.

A painted turtle beginning her hole for eggs at 4 P. M.

Yellow bugs have come by thousands this clear and rather warm day after the rain; also squash-bugs have come. When, in a warm day after rain, the plants are tender and succulent, this is the time they work most.

River at 6 P. M., twelve and five eighths inches above summer level.

To-night the toads ring loudly and generally, as do hylodes also, the thermometer being at 62 at 9 P. M. Four degrees more of warmth, the earth being drier and the water warmer, makes this difference. It appears, then, that the evening just after a rain-storm (as the last), thermometer 58, the toads will be nearly silent, but the hylodes wide awake; but the next evening, with thermometer at 62, both will be wide awake.

Dor-bugs come humming by my head to-night.

The peculiarities of the new leaves, or young ones, are to be observed. *As I now remember*, there is the whitish shoot of the white pine; the reddish brown of the pitch pine, giving a new tinge to its tops; the bead-work of the hemlock; the now just conspicuous bursting lighter glaucous-green buds of the black spruce in cold swamps; the frizzly-looking glaucous-green shoots and leafets of the fir (and fragrant now or soon); the thin and delicate foliage of the larch; the inconspicuous and fragrant arbor-vitæ; the bead-work of the *Juniperus repens* (red cedar inconspicuous); probably the bead-

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work of the yew;[1] the tented leaves of the white oak; the crimson black and white oaks and black shrub lately, and now, in hollows, the downy grayish (at first) of black and white, etc.; the now tender, delicate green of swamp white and chincapin; the large and yellowish, rapildy expanding (at first), of the nut trees; the gamboge-yellow of the birches (now as dark as most, for leaves are acquiring one shade at present); the thick darker green of alders; the downyish of buttonwood *still small;* the soon developed and darkened and fluttering early aspens and Gileads; the still silvery *Populus grandidentata;* the small-leafeted and yellowish locust; the early yellow of *Salix alba;* the fine-leaved *S. nigra;* the wreath-and-column-leaved elm; the suddenly expanding but few-leaved ash trees, showing much stalk, or stem, and branch; the button-bush, with shoots before leaves; the reddish-leafed young checkerberry; the suddenly developed and conspicuous viburnums (sweet and naked); the unequal-leafing panicled andromeda; the purplish-brown stipules of the *Amelanchier Botryapium;* the downy stipules of the *A. oblongifolia.* The red maples now become darker and firm, or hard. The large-leafed sumachs.

June 8. River at 6 A. M. twelve and seven eighths inches above summer level.

2 P. M. — To Well Meadow *via* Walden.

Within a day or two has begun that season of summer when you see afternoon showers, maybe with thunder, or the threat of them, dark in the horizon, and are

[1] June 8th, grown one inch or more, but not very distinct in color.

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uncertain whether to venture far away or without an umbrella. I noticed the very first such cloud on the 25th of May, — the dark iris of June. When you go forth to walk at 2 P. M. you see perhaps, in the southwest or west or maybe east horizon, a dark and threatening mass of cloud showing itself just over the woods, its base horizontal and dark, with lighter edges where it is rolled up to the light, while all beneath is the kind of dark slate of falling rain. These are summer showers, come with the heats of summer.

June-grass just begun to bloom in the village.

A great yellow and dark butterfly (C. saw something like it a week ago).[1]

What delicate fans are the great red oak leaves now just developed, so thin and of so tender a green! They hang loosely, flaccidly, down at the mercy of the wind, like a new-born butterfly or dragon-fly. A strong and cold wind would blacken and tear them now. They remind me of the frailest stuffs hung around a dry-goods shop. They have not been hardened by exposure yet, these raw and tender lungs of the tree. The white oak leaves are especially downy, and lint your clothes.

This is truly June when you begin to see brakes (dark green) fully expanded in the wood-paths.

That sedge which grows in the Fox Path Hollow (by the Andromeda Ponds), the coarser one, rather around the sides or slopes than at the very bottom, is a slender *Carex siccata*, almost all out of bloom, — all except that which is at the bottom of the hollow. For I see here

[1] *Papilio Turnus.*

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on a smaller scale the same phenomena as at Holbrook Poplar Hollow (*vide* yesterday). The panicled cornel looks generally dead, just beginning to leaf; young white and black oaks are in the red; and the second amelanchier is in the flower still here. Indeed, shrub oaks, and young oaks generally and conspicuously, are quite late — just in the red — now in hollows and other cold parts of the woods; and *generally* these shrubs, including hazel even, have not been frost-bitten, but have not put forth till now.

Carex bromoides may have been out a fortnight at Well Meadow; and *C. scabrata*, say ten days. *C. tenella* (near the earliest cowslip) all in seed and much seed fallen and no sterile flower; say three weeks. *C. intumescens*, say five or six days (*e. g.*, just south of earliest cowslip).

Hoed potatoes first time two or three days ago; my corn to-day.

All stagnant water is covered with the lint from the new leaves, — harmless to drink, — especially after rain. If you [take] a scarlet oak leaf and rub the under side on your coat-sleeve, it will not whiten it, but a white oak leaf will color it as with meal.

Carex polytrichoides grows at Well Meadow.

I see a small mist of cobweb, globular, on a dead twig eight inches above the ground in the wood-path. It is from an inch and a half to two inches in diameter, and when I disturb it I see it swarming with a mass of a thousand minute spiders. A spider-nest lately hatched.

In early June, methinks, as now, we have clearer days, less haze, more or less breeze, — especially after rain, —

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and more sparkling water than before. (I look from Fair Haven Hill.) As there is more shade in the woods, so there is more shade in the sky, *i. e.* dark or heavy clouds contrasted with the bright sky, — not the gray clouds of spring.

The leaves generally are almost fully expanded, *i. e.* some of each tree.

You seek the early strawberries in any the most favorable exposure, — on the sides [of] little knolls or swells, or in the little sandy hollows where cows have pawed, settling the question of superiority and which shall lead the herd, when first turned out to pasture.

As I look at the mountains in the horizon, I am struck by the fact that they are all pyramidal — pyramids, more or less low — and have a peak. Why have the mountains usually a peak? This is not the common form of hills. They do not so impress us at least.

River at 7 P. M. fourteen and a half above summer level.

June 9. 7 A. M. — River fourteen and one eighth above summer level only, though after considerable rain in the night.

We have had half a dozen showers to-day, distinct summer showers from black clouds suddenly wafted up from the west and northeast; also some thunder and hail, — large white stones.

Standing on the Mill-Dam this afternoon, after one of these showers, I noticed the air full of some kind of

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down, which at first I mistook for feathers or lint from some chamber, then for light-winged insects, for it rose and fell just like the flights of may-flies. At length I traced it to the white willow behind the blacksmith's shop, which apparently the rain has released. The wind was driving it up between and over the buildings, and it was flying all along the Mill-Dam in a stream, filling the air like a flight of bright-colored gauze-winged insects, as high as the roofs. It was the willow down with a minute blackish seed in the midst or beneath. In the moist air, seen against the still dark clouds, like large white dancing motes, from time to time falling to earth. The rain had apparently loosened them, and the slight breeze succeeding set them a-going.

As I stood talking with one on the sidewalk, I saw two yellow dor-bugs fall successively to the earth from the elm above. They were sluggish, as usual by day, and appeared to have just lost their hold, perhaps on account of the rain or the slight wind arising. I also see them floating in the river, into which they have fallen, or perhaps they have been carried off by its rising. They might be called blunderers.

6 P. M. — Paddle to Flint's hedge.

River fourteen and three quarters above summer level.

Viburnum Lentago nearly in prime.

An abundance of *Carex scoparia* now conspicuously browns the shores, especially below Flint's willows. The *C. lagopodioides* is apparently in prime (out say one week or less) at Flint's hedge. That is apparently the *C. rosea* there under the hickory; observed the 23d of

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May. The *C. monile* is now quite conspicuous along the river, as well as the *C. bullata*.

A kingbird's nest and one egg.

C. says that a fox stood near, watching him, in Britton's Hollow to-day. No doubt she had young.

The water-bugs begin to venture out on to the stream from the shadow of a dark wood, as at the Island. So soon as the dusk begins to settle on the river, they begin to steal out, or to extend their circling from amid the bushes and weeds over the channel of the river. They do not simply then, if ever, venture forth, but then invariably, and at once, the whole length of the stream, they one and all sally out and begin to dimple its broad surface, as if it were a necessity so to do.

June 10. Another showery day, or rather shower-threatening.

2 P. M. — To Annursnack.

A very strong northwest wind, and cold. At 6 P. M. it was 58°. This, with wind, makes a very cold day at this season. Yet I do not need fire in the house.

This violent and cool wind must seriously injure the just developed tender leaves. I never observed so much harm of this kind done. Leaves of all kinds are blown off and torn by it, as oak, maple, birch, etc. As I sit under a white oak, I see the fragments torn off — a quarter or half the leaf — filling the air and showering down at each ruder blast, and the ground is spotted green with them. There are not many whole leaves of the white oak blown off, but these torn fragments rather. At the Assabet stone bridge, the water along the shore

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is lined with a broad green mass of them, which have been blown into it, three or four feet wide, washed against the shore. Such a wind makes tearing work with them, now that they are so tender.

There is much handsome interrupted fern in the Painted-Cup Meadow, and near the top of one of the clumps we noticed something like a large cocoon, the color of the rusty cinnamon fern wool. It was a red bat, the New York bat, so called. It hung suspended, head directly downward, with its little sharp claws or hooks caught through one of the divisions at the base of one of the pinnæ, above the fructification. It was a delicate rusty brown in color, very like the wool of the cinnamon fern, with the whiter bare spaces seen through it early in the season. I thought at first glance it was a broad brown cocoon, then that it was the plump body of a monstrous emperor moth. It was rusty or reddish brown, white or hoary within or beneath the tips, with a white apparently triangular spot beneath, about the insertion of the wings. Its wings were very compactly folded up, the principal bones (darker-reddish) lying flat along the under side of its body, and a hook on each meeting its opposite under the chin of the creature. It did not look like fur, but more like the plush of the ripe cat-tail head, though more loose, — all trembling in the wind and with the pulsations of the animal. I broke off the top of the fern and let the bat lie on its back in my hand. I held it and turned it about for ten or fifteen minutes, but it did not awake. Once or twice it opened its eyes a little, and even it raised its head, opened its mouth, but soon drowsily dropped its head and fell

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asleep again. Its ears were rounded and nearly bare. It was more attentive to sounds than to motions. Finally, by shaking it, and especially by hissing or whistling, I thoroughly awakened it, and it fluttered off twenty or thirty rods to the woods. I cannot but think that its instinct taught it to cling to the interrupted fern, since it might readily be mistaken for a mass of its fruit. Raised its old-haggish head. Unless it showed its head wide awake, it looked like a tender infant.

June 11. 6 A. M. — River twelve inches above summer level at 10.30 A. M. Sail to Tall's Island.

Wind northwest, pretty strong, and not a warm day.

I notice the patches of bulrushes (*Scirpus lacustris*) now generally eighteen inches high and very dark green, but recently showing themselves.

The evergreens are now completely invested by the deciduous trees, and you get the full effect of their dark green contrasting with the yellowish green of the deciduous trees.

The wind does not blow through our river-valley just as the vanes indicate at home, but conformably to the form of the valley somewhat. It depends on whether you have a high and hilly shore to guide it, or a flat one which it may blow across. With a northwest wind, it is difficult to sail from the willow-row to Hubbard's Bath, yet I can sail more westerly from the island point in Fair Haven Bay to the bath-place above; and though I could not do the first to-day, I did sail all the way from Rice's Bar to half a mile above Sherman's Bridge by all the windings of the river.

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If the bend is due east and the wind northwest I can sail round it. Again, as I was approaching Bittern Cliff, I had but little wind, but I said to myself, As soon as I reach the cliff I shall find myself in a current of wind blowing into the opening of the pond valley; and I did. Indeed, the wind flows through that part of the river-valley above the water-line somewhat as the water does below it.

I see from time to time a fish, scared by our sail, leap four to six feet through the air above the waves. See many small blue devil's-needles to-day, but no mates with them, and is it not they that the kingbird stoops to snap up, striking the water each time?

I find the Sudbury meadows unexpectedly wet. There is at least one foot of water on the meadows generally. I cut off the principal bends, pushing amid the thin sedge and pipes, and land on Tall's Island. I had carried india-rubber boots to look for wrens' nests, but the water was very much too deep, and I could not have used them except on the very edge in some places. Yet the river in Concord this morning was but just one foot above summer level and about eighteen inches above where it was just before the middle of May, when everybody remarked on its extreme lowness, and Ebby Conant observed to me, "It is lower than ever it was known to be, is n't it?" I told him that I had seen it as low, *in the summer*, about every other year. If you should lower it eighteen inches now here, there would still be much water on the Sudbury meadows. The amount of it is, the Sudbury meadows are so low, referred to the river, that when the river is nineteen and

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one eighth inches above extreme low water (the lowest we have had this year) you can push over the greater part of the Sudbury meadows in a boat. Accordingly, on far the greater part of these meadows there is now very little grass, *i. e.* sedge, but thin pipes and sedge, — the *Carex stricta* and *monile* commonly (too wet for *scoparia* and *stellulata*). I do not see the great *Scirpus fluviatilis* there yet. The greater part of the meadows are evidently too wet for the *C. stricta* (occasionally some large tussocks surrounded by water) and *monile* even, and the pipes are but thin. There are many large spaces of pads, — two at Tall's Island, — showing that they are wet all summer. The sedges, even, are thick and rank only on the more elevated and drier edges of the meadow. This is more like a lagoon than a meadow, in fact. It is too wet even for sedges to flourish, for they are not dense, as on other meadows, except on the higher parts near the hills or shores. *C. stricta* grows thinly (with thin pipes) or occasionally in large tufts. On dry parts only, the *C. monile*, etc., etc.

Landing on Tall's Island, I perceive a sour scent from the wilted leaves and scraps of leaves which were blown off yesterday and strew the ground in all woods.

Just within the edge of the wood there, I see a small painted turtle on its back, with its head stretched out as if to turn over. Surprised by the sight, I stooped to investigate the cause. It drew in its head at once, but I noticed that its shell was partially empty. I could see through it from side to side as it lay, its entrails having been extracted through large openings just before the

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hind legs. The dead leaves were flattened for a foot over, where it had been operated on, and were a little bloody. Its paunch lay on the leaves, and contained much vegetable matter, — old cranberry leaves, etc. Judging by the striæ, it was not more than five or six years old, — or four or five. Its fore parts were quite alive, its hind legs apparently dead, its inwards gone; apparently its spine perfect. The flies had entered it in numbers. What creature could have done this which it would be difficult for a man to do? I thought of a skunk, weazel, mink, but I do not believe that they could have got their snouts into so small a space as that in front of the hind legs between the shells. The hind legs themselves had not been injured nor the shell scratched. I thought it most likely that it was done by some bird of the heron kind which has a long and powerful bill. And probably this accounts for the many dead turtles which I have found and thought died from disease. Such is Nature, who gave one creature a taste or yearning for another's entrails as its favorite tidbit!! I thought the more of a bird, for, just as we were shoving away from this isle, I heard a sound just like a small dog barking hoarsely, and, looking up, saw it was made by a bittern (*Ardea minor*), a pair of which were flapping over the meadows and probably had a nest in some tussock thereabouts. No wonder the turtle is wary, for, notwithstanding its horny shell, when it comes forth to lay its eggs it runs the risk of having its entrails plucked out. That is the reason that the box turtle, which lives on the land, is made to shut itself up entirely within the shell, and I suspect that the

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mud tortoise only comes forth by night. What need the turtle has of some horny shield over those tender parts and avenues to its entrails! I saw several of these painted turtles dead on the bottom.[1]

Already I see those handsome fungi spots on the red maple leaves, yellow within, with a green centre, then the light-red ring deepening to crimson. The largest a quarter of an inch in diameter.

Heard many redstarts on the Island. Saw creepers and one wood pewee nest on a swamp white oak, not quite done.

On our way up, we ate our dinner at Rice's shore, and looked over the meadows, covered there with waving sedge, light-glaucous as it is bent by the wind, reflecting a grayish or light-glaucous light from its under side. That meadow opposite Rice's Bath is comparatively well covered with sedge, as the *great* Sudbury meadow is not.

I now first begin to notice the silvery under sides of the red maple and swamp white oak leaves, turned up by the wind. Looking at a hillside of young trees, what various shades of green! The oaks generally are a light and tender and yellowish green; the white birches, dark green now; the maples, dark and silvery.

Notice pads and pontederias are now pretty thick. The white lily pads reddish, and showing their crimson under sides from time to time when the wind blows hardest.

The potamogeton (the large common one) is remark-

[1] *Vide* June 10, 1858.

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able as a *brown* leaf, — fit color for the brown water on which it floats, — but the potamogetons are few and scarcely obvious yet on the river.

A painted turtle laying, at 5 P. M.

Saw a sphinx moth night before last.

The *Carex tentaculata* at Clamshell in prime, say one week. It abounds at Forget-me-not Shore, — dense-flowered, spreading spikes.

At 9 P. M., 54°, and no toads nor peepers heard.

Some fields began to be white with whiteweed on the 9th.

June 12. P. M. Up Assabet.

I find several *Emys insculpta* nests and eggs, and see two painted turtles going inland to lay at 3 P. M. At this moment these turtles are on their way inland to lay their eggs all over the State, warily drawing in their heads and waiting when you come by. Here is a painted turtle just a rod inland, its back all covered with the fragments of green leaves blown off and washed up yesterday, which now line the shore. It has come out through this wrack. As the river has gone down, these green leaves mark the bank in lines just like sawdust.

I see a young yellow-spot turtle in the Assabet, still quite broad and roundish though I count about seven striæ. It is very handsome.

At 7.30 P. M. I hear many toads, it being a warm night, but scarcely any hylodes.[1]

River ten and one third above summer level.

[1] 17th, have heard no more hylodes

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June 13. 2 P. M. To M. Miles's *via* Clamshell.

Hear of a snapping turtle which had begun to lay her eggs last night in Cyrus Hosmer's corn-field, this side of Clamshell. He found it by its scaring his horse as he was plowing between his corn. The horse started and stopped at it. I saw its track. I see how I can find them. Select a cultivated field, especially a sandy one near the river or a brook, and walk along its edge, parallel with the stream, at this season, and you will see by the track if a turtle has recently been out that way, — can follow it and find the eggs.

I first heard that *tchuck* sound — as of a fish striking a pad — on the 2d of June, when there were very few weeds in the river, and have since heard it repeatedly.

I noticed as I sat in my boat by the riverside last evening, half an hour after sunset, a very low and local, yet dense, fog close to the shore, under the edge of the sedge on one side, a foot high by three or four wide for several rods. It occupied such a space as a shadow does under a hedge. It occurred to me that perhaps the water was cooler there than elsewhere.

I find, on the face of Clamshell Hill, *Carex Muhlenbergii* about ripe, the perigynia nerved distinctly on both sides. I think that this is the same with that of May 26 and June 10, etc., — all that I may have thought *cephalophora* this year, — though I did not find them distinctly nerved on both sides. They were younger. The achenium of this is orbicular. It grows, then, here and probably at Lee's south slope, Annursnack Hill (very common), and is generally long done.

I see, at Martial Miles's, two young woodchucks,

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taken sixteen days ago, when they were perhaps a fortnight old. There were four in all, and they were dug out by the aid of a dog. The mother successively *pushed out* her little ones to the dog to save herself, and one was at once killed by the dog. These two are now nearly one-third grown. They have found a hole within the house, into which they run, and whither they have carried shavings, etc., and made a nest. Thence they run outdoors, and feed close along about the house, lurking behind barrels, etc. They eat yarrow, clove[r], catnep, etc., and are fed with milk and bread. They do not drink the milk like a dog or like a cat, but simply suck it, taking the sharp edge of the shallow tin dish in their mouths. They are said to spit like a cat. They eat bread sitting upright on their haunches and holding it in their fore paws, just like a squirrel. That is their common and natural mode of eating. They are as gray — or grayer (or hoary) — as the old. Mrs. Miles says they sleep on their heads, *i. e.*, curling their heads right under them; also that they can back as straight into their hole as if they went head foremost. I saw a full-grown one this afternoon which stood so erect and still, its paws hanging down and inobvious as its ears, that it might be mistaken for a short and very stout stake.

At Ledum Swamp the woodwardia is recent; generally not yet expanded; one of the latest ferns. The *Eriophorum vaginatum* is generally gone to seed. The *Carex canescens* (the glaucous *scoparia*-like) is the prevailing *Carex* there, hanging over the ditches and the pool.

I find in J. Hosmer's spring a seedling skunk-cabbage

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with the nut attached. It had fallen into the spring, perhaps, from a mouse's store, and a single green leaf two or three inches long had grown from it while a root had penetrated the mud. The strawberry about Hosmer's tub spring has its seeds in pits and is therefore *Fragaria Virginiana.*

The *Eriophorum polystachyon* is well cottoned out.

Now perceive the smell of red clover blossoms.

This afternoon the streets are strewn with the leaves of the buttonwood, which are still falling. Looking up, I see many more hanging wilted or withered, — half-formed leaves. I think that the leaves of these trees were especially injured by the cold wind of the 10th, as the other trees, and are just now falling in consequence. I can tell when I am under a buttonwood by the number of leaves on the ground. With the other trees it was mainly a mechanical injury, done rather by the wind than the cold, but the tender shoots of this tree were killed.

Yesterday I could still see through the bass and the red oak up the Assabet, and the last was a little the densest.

On the 11th I saw, swimming near me on the Sudbury meadows, apparently the *Bryttus obesus*, judging from its stripes and form. It was quite tame and apparently rather sluggish.

June 14. I see near at hand two of those large yellow (and black) butterflies which I have probably seen nearly a month. They rest on the mud near a brook. Two and three quarters to three inches in alar

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extent; yellow with a broad black border, outside of which a row of small yellow spots; three or four black marks transversely to the fore wings, and two fine lines parallel with the body on the hinder (?) wings; a small and slender swallow tail with reddish brown and blue at the tail; body black above and yellow along the sides.[1]

P. M. — To Second Division.

At Dugan Desert many fresh turtle-tracks. They generally steer for some more elevated and perhaps bushy place. The tail makes a serpentine track, the tracks of the flippers and claws quite distinct, and you see where the turtle rested on its shell, flatting the sand, from time to time. You can easily trace one to where the sand has been disturbed, and dig up its eggs, as I did, — six eggs, about two and a half to three inches deep. *Emys insculpta.*

The juncus of Second Division is just beginning[2] at the west or northwesterly edge, next the higher ground. It may be that most of it does not bloom. The stigmas are prominent [on] a few plants, the anthers scarcely perceptible yet. The sepals are rather a green [?] purple, with a green centre, than green.

The slender grass mixed with the above, apparently *Trisetum palustre,* is now very commonly in bloom, apparently several days; also the smaller (fifteen-inch) festuca two or three days, in dry ground.

The white water ranunculus is abundant in the brook; out say a week, and well open in the sunshine. It is [a]

[1] C. says it is the *Papilio Turnus* of Say.

[2] Say, rather, in a day or two.

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pretty white flower (with yellow centre) seen above the dark brown-green leaves in the rapid water, its peduncle recurved so as to present the flower erect half an inch to an inch above the surface, while the buds are submerged.

See a pigeon. A brood of little partridges in the wood-paths. The old bird utters a loud wiry, mewing sound of alarm, the young a very fine sharp sound like cherry-birds. For a week at least have seen cowbirds about cows.

The common cress gone to seed; only a little lingers.

I felt that the season of storms, *i. e.* of two days' rain, was past about June 1st.

Saw a rainbow in afternoon of 7th.

June 15. 2 P. M. — River four and one half above summer level.

For some time I have not heard toads by day,[1] and not for a long time in numbers; yet they still ring at night. Perhaps it is entirely a matter of temperature, — that in June and maybe the latter half of May (?) they require the coolness of the evening to arouse them. The hylodes appear to have done.

I paddle to Clamshell.

Notice the down of the white willow near the bridge, twenty rods off, whitening Sassafras Shore for two or three rods like a dense white foam. It is all full of little seeds not sprouted, is as dense as fur, and has first blown fifteen rods overland. This is a late willow to ripen, but the black willow shows no down yet, *as I notice*. It is very conspicuously white along the shore,

[1] But rarely.

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a foot or two wide, — a dense downy coat or fleece on the water. Has blown northeast.

See froth about the base of some grass in a meadow. The large early wool-grass of the meadows will shed pollen in a day or two — can *see* stamens — on Hosmer's Flat shore. This it is grows in circles.

As I stood there I heard that peculiar hawk-like (for rhythm) but more resonant or clanging kind of scream which I may have heard before this year, plover-like, indefinitely far, — over the Clamshell plain. After proceeding half a dozen rods toward the hill, I heard the familiar willet note of the upland plover and, looking up, saw one standing erect — like a large tell-tale, or chicken with its head stretched up — on the rail fence. After a while it flew off southwest and low, then wheeled and went a little higher down the river. Of pigeon size, but quick quivering wings. Finally rose higher and flew more or less zigzag, as if uncertain where it would alight, and at last, when almost out of sight, it pitched down into a field near Cyrus Hubbard's. It was the same note I heard so well on Cape Cod in July, '55, and probably the same I heard in the Shawsheen valley, May 15, 1858. I suspect, then, that it breeds here.

The button-bush is now fairly green.

The *Carex stricta* tufts are now as large as ever, and, the culms falling over, they are like great long-haired

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heads, now drooping around the great tussocks. I know of no other sedge that make so massive and conspicuous a tussock, yet with a slender leaf. This the one that reflects the peculiar glaucous sheen from its bent surfaces.

The turtles are apparently now in the midst of their laying. I go looking for them, to see where they have left the water for this purpose. See a snapping turtle whose shell is about ten inches long making her hole on the top of the sand-bank at the steam-mill site, within four rods of the road. She pauses warily at sound of my boat, but I should have mistaken her for a dark stone if she had [not] lifted her snout above her shell. I went to her as she lay and hissed by the hole at 4 P. M. It was about three and a half inches across, and not perpendicular but chiefly on one side; say five inches deep (as yet), and four plus inches wide beneath, but only about one inch of the bottom exposed when you looked straight down, — in short, like the common *Emys picta's* hole. She had copiously wet the ground before or while digging, as the *picta* does. Saw two or three similar holes made by her afterward. There was her broad track (some ten inches wide) up the sandy or gravelly bank, and I saw where she had before dug, or begun to dig, within a rod of this, but had retreated to the river. I withdrew to the bridge to observe her (not having touched her), but she took the occasion to hasten to the river.

A thunder-shower in the north goes down the Merrimack.

We have had warmer weather for several days, say

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since 12th. A new season begun, — daily baths, thin coat, etc.[1]

The bullfrogs now *commonly* trump at night, and the mosquitoes are now really troublesome.

June 16. I notice this forenoon, about my melons, an excrement five to six eighths of an inch long, narrowed and with a sort of stem at one end, full of wing-cases of beetles, etc., and black, looking at first like the cocoon of some insect, but moist and fresh. Also saw four or five on the sidewalk as I went to the post-office (after a warm night). It is probably the excrement of the toad, of which I have seen no account.

I saw great puffs on the andromeda the 14th.

At 2 P. M. 85°, and about same for several days past. I have heard no hylodes since the 12th, and no purring frogs (*Rana palustris*). Think they ceased about the same time, or with the 85° heat, *i. e.* with ribbon for neck and thinnest sack.

Thunder-showers show themselves about 2 P. M. in the west, but split at sight of Concord and go east on each side, we getting only a slight shower.

At evening paddle to Clamshell.

The meadows full of lightning-bugs to-night; first seen the 14th. (There had then been a thunder-shower *in the north.*)

Rose-bugs two or three days at least.

It appears to me that these phenomena occur simultaneously, say June 12th, *viz.* : —

[1] Heat probably about 85° at 2 P. M. *Vide* [below].

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Heat about 85° at 2 P. M. True summer.
Hylodes cease to peep.
Purring frogs (*Rana palustris*) cease.
Lightning-bugs first seen.
Bullfrogs trump *generally*.
Mosquitoes begin to be really troublesome.
Afternoon thunder-showers almost regular.[1]
Sleep with open window (10th), and wear thin coat and ribbon on neck.
Turtles fairly and generally begun to lay.

As I stand at Clamshell, it occurs to me that I never see the stinkpot laying its eggs on land by day; that therefore it must lay its eggs by night.[2] Where, then, shall I look for them now by night with a lantern? Why not here as well as anywhere? And I turn my eyes in the twilight to the shore there, when I see a turtle just entering the water. Running to it with haste, I see it (after it has entered the river) to be a stinkpot, which probably was frightened by us. Had come forth to lay, or, possibly, was returning. I think I never see the *picta* and *insculpta* and yellow-spot ashore by night.

The pickerel-weed appears to have suddenly shot up to about its final height, but it is mainly owing to the river having rapidly fallen a foot within a few days. So far as the height of this plant is concerned, the river now reaches its summer régime. Not yet the potamogetons.

Channing found a marsh hawk's nest on the Great Meadows this afternoon, with three eggs considerably developed. This is the third I have heard of this year.[3]

[1] 15th, 16th, 17th.
[2] No. *Vide* back in Journal to when Ricketson here once.
[3] *Vide* July 3d.

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June 17. Quite a fog this morning.

About 1 P. M., notice thunder-clouds in west and hear the muttering. As yesterday, it splits at sight of Concord and goes south and north. Nevertheless about 3 P. M. begins a steady gentle rain here for several hours, and in the night again, the thunder, as yesterday, mostly forerunning or superficial to the shower.

This the third day of thunder-showers in afternoon, though the 14th it did not rain here.

Carex flava out, possibly a week.

June 18. The tumultuous singing of birds, a burst of melody, wakes me up (the window being open) these mornings at dawn. What a *matinade* to have poured into your slumber!

2 P. M. — To Walden and Cliffs.

Rabbit clover is now two or three inches high.

I see in the southerly bays of Walden the pine pollen now washed up thickly; only at the bottom of the bays, especially the deep long bay, where it is a couple of rods long by six to twenty-four inches wide and one inch deep; pure sulphur-yellow, and now has no smell. It has come quite across the pond from where the pines stand, full half a mile, probably washed across most of the way.

I have scarcely seen a warbler for a fortnight, or since the leaves have been developed, though I hear plenty of them in the tree-tops.

Standing on Emerson's Cliff, I see very distinctly the redness of a luxuriant field of clover on the top of Fair Haven Hill, some two thirds of a mile off, the day being

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cloudy and misty, the sun just ready to break out. You might have mistaken the redness for that of withered pine boughs where wood was cut last winter.

On this Emerson hill I notice, among other growths after the cutting two years ago, — the huckleberry and blueberry, — that the sedge *P. Pennsylvanica* has shot up into large and luxuriant and densely set tufts, giving to the spaces between the little oak sprouts and clumps quite a grassy appearance.

Notice those remarkable galls on a shrub oak, two or three together, or hardly so broad as this, each with a grub in it.

June 19. Dewy clouds in the air to-day and yesterday, yet not threatening rain; somewhat dog-day-like.

Let an oak be hewed and put into the frame of a house, where it is sheltered, and it will last several centuries. Even as a sill it may last one hundred and fifty years. But simply cut it down and let it lie, though in an open pasture, and it will probably be thoroughly rotten in twenty-five years. There is the oak cut down at Clamshell some twenty years ago, the butt left on the ground. It has about two-thirds wasted away, and is hardly fit for fuel.

The leading shoot of one of my young white pines (not the rankest, but easily reached) has grown sixteen and a quarter inches. Let me measure it again in a few days.[1]

[1] *Vide* 27th and July 4th.

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2 P. M. — To Flint's Pond.

Going through the cold hollows at Ripple Lake, where the wood was cut some twenty-two years ago, I observe that they are still almost entirely sedge, — bare grassy hollows, — while at a certain height all around the wood rises abruptly and densely to the height of fifteen or twenty feet. These portions are kept bare and are likely to be an indefinite time longer. The sedge of these hollows is the *Pennsylvanica*, slender *siccata*, and some *vestita*, as well as grass. There are numberless chocolate-colored and other devil's-needles coursing up and down these hollows now.

Observe a nest crowded full with four young brown thrashers half fledged. You would think they would die of heat, so densely packed and overflowing. Three head one way, and the other lies across. How quickly a fox would gobble them up!

Ripple Lake northeast shore is lined with a pale-yellowish pine pollen, though there are no pines within a dozen rods, and those (white pines) on the east. Half of the pool is gray with the dust, as with meal. Is not this paler yellow that of the white pine? So of Goose Pond. Thus these ponds and pools in the woods catch the pine pollen that may be floating in the atmosphere, and it is washed up to one side (the northeast side). At Flint's also. They are *pollen-ometers*. I see at Flint's a great many winged insects collected on it.

The devil's-needles now abound in wood-paths and about the Ripple Lakes. Even if your eyes were shut you would know they were there, hearing the rustling

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of their wings as they flit by or wheel in pursuit of one another. Very various colors and sizes.

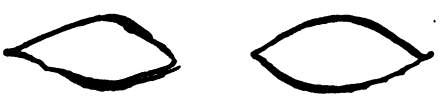
I observe that the water-bugs confine themselves to the shore, even of Ripple Lake, now by *day*, though I doubt if there are fishes that would disturb them in the middle here.

The eriocaulon shows white heads two to five inches high.

I follow a distinct fox-path amid the grass and bushes for some forty rods beyond Britton's Hollow, leading from the great fox-hole. It branches on reaching the peach-orchard. No doubt by these routes they oftenest go and return to their hole. As broad as a cart-wheel, and at last best seen when you do not look too hard for it.

Some tall rough goldenrod is three feet high, and generally in rich ground it is two or more. Also some fragrant goldenrod is two feet high. The *Carex tentaculata* is peculiar whitish-spiked. The clethra has a peculiarly fresh, shining leaf. The red oak leaf has a hard gloss to it.

Some large round oak-apples on small trees or bushes are interesting and handsome even as a fruit, — a lemon or orange. Here are some five inches in circumference, glossy-green on one side (pale on the other) with whitish prominences. Those two pointed ones of yesterday



are a pale dull green, with similar whitish points.

Pads already eaten for some time, in straight lines as if racked by shot; and I see that they are thus eaten

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from the upper side, for here is one place begun but not eaten through.

Is not that the *Glyceria pallida* now out a day or two in the small fen just south of Lincoln bound on the Turnpike? *Eriophorum gracile* (the triangular-leafed) well out, same place with the last, probably some days. Redstarts are common here now. Sugar maple keys are falling on the Common. The green sarsaparilla berries make quite a show as you catch sight of them half concealed by their leaves.

June 20. No dew this *morning*, but early in the forenoon.

Heavy rain (with holdings up) all day and part of the following night. Very little wind, and that northeast. (This the result of the two days of dewy clouds, dogdayish.) It comes down perpendicularly. Nearly an inch and a quarter falls into a large tin pail with upright sides (which I had placed in the garden for the purpose) between 8 A. M. and 12, and by the next morning there is two and one eighth inches, — which is the whole of it. More rain falls to-day than any day since March, if not this year. It is a warm rain, and I sit all the day and evening with my window open. It beats down the potatoes, grass, etc., and so weighs down the luxuriant shoots of the currant that they either break off or require to be broken off at a great sacrifice of growth, — eighteen to twenty-four inches long.

June 21. 6 A. M. — The river has risen to seven and a half inches above summer level (probably from

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about two or three above in the morning of yesterday). At 7 P. M. it is eleven and a half inches above summer level.

The wind is still northeast, and the air is now so cold (cooled by the rain) that most have fires, and it is uncomfortably cool out of the sun, which does not shine much this forenoon.

Phalaris Americana (some probably two or three days). It is the rankest and for its size most conspicuous common grass. You see great dark-green islets of it by the side of, or even in, the river, where it is muddy, with the large whitish panicles (?) lifted above the broad rank leaves. These are four or five feet high, very luxuriant.

I first noticed elms full of *dark* shade at a distance some three or four days ago. As soon as they are well leafed it is seen how gracefully they droop.

At 12 M. it is only 59° above zero, and I am surprised to hear some toads ring, which I have not heard lately by day; as if this degree of coolness even (at midday) was agreeable to them, corresponding to 62 or more at evening.

At noon the sun comes fairly out and the wind rises. June has been quite a breezy month thus far. I have waited in vain for perfectly smooth water in which to watch the bream poised over her nest. There has been almost a steady breeze or breeziness with the waving of new-leafed boughs.

2 P. M. — To Little Truro.

Carex flava grows up the railroad, about as far as the spring on the north side. I see, on the railroad track,

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young partridges about as big as my fist, while the old bird in grass does not see me at first. The young now make a sound not so fine, more like some of the notes of little chickens. The old bird steps about alarmed with swollen throat, or neck-feathers puffed up.

Crossing William Brown's dry field in front of the schoolhouse, I see a young thrasher which has just left the nest, and the old bird about it. I oftenest find them in half-open dry fields where there are scattered birches, pines, and shrub oaks.

The earliest cinquefoil grows abundantly in Brown's dry pastures, but I scarcely see one in bloom now. The silvery cinquefoil is abundant.

Having noticed the pine pollen washed up on the shore of three or four ponds in the woods lately and at Ripple Lake, a dozen rods from the nearest pine, also having seen the pollen carried off visibly half a dozen rods from a pitch pine which I had jarred, and rising all the while when there was very little wind, it suggested to me that the air must be full of this fine dust at this season, that it must be carried to great distances, when dry, and falling at night perhaps, or with a change in the atmosphere, its presence might be detected remote from pines by examining the edges of pretty large bodies of water, where it would be collected to one side by the wind and waves from a large area.

So I thought over all the small ponds in the township in order to select one or more most remote from the woods or pines, whose shores I might examine and so test my theory. I could think of none more favorable

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than this little pond only four rods in diameter, a watering-place in John Brown's pasture, which has but few pads in it. It is a small round pond at the bottom of a hollow in the midst of a perfectly bare, dry pasture. The nearest wood of any kind is just thirty-nine rods distant northward, and across a road from the edge of the pond. Any other wood in other directions is five or six times as far. I knew it was a bad time to try my experiment, — just after such heavy rains and when the pines are effete, — a little too late. The wind was now blowing quite strong from the northeast, whereas all the pollen that I had seen hitherto had been collected on the northeast sides of ponds by a southwest wind. I approached the pond from the northeast and, looking over it and carefully along the shore there, could detect no pollen. I then proceeded to walk round it, but still could detect none. I then said to myself, If there was any here before the rain and northeast wind, it must have been on the northeast side and then have been washed over and now up high quite at or on the shore. I looked there carefully, stooping down, and was gratified to find, after all, a distinct yellow line of pollen dust about half an inch in width — or washing off to two or three times that width — quite on the edge, and some dead twigs which I took up from the wet shore were completely coated with it, as with sulphur. This yellow line reached half a rod along the southwest side, and I then detected a little of the dust slightly graying the surface for two or three feet out there. (Many little snow(?)-fleas on it.)

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When I thought I had failed, I was much pleased to detect, after all, this distinct yellow line, revealing unmistakably the presence of pines in the neighborhood and thus confirming my theory. As chemists detect the presence of ozone in the atmosphere by exposing to it a delicately prepared paper, so the lakes detect for us thus the presence of the pine pollen in the atmosphere. They are our *pollinometers*. How much of this invisible dust must be floating in the atmosphere, and be inhaled and drunk by us at this season!! Who knows but the pollen of some plants may be unwholesome to inhale, and produce the diseases of the season?[1]

Of course a large pond will collect the most, and you will find most at the bottom of long deep bays into which the wind blows.

I do not believe that there is any part of this town on which the pollen of the pine may not fall. The time to examine the ponds this year was, I should say, from the 15th to the 20th of this month. Looking at the trees to-day, I find that the pines are now effete, especially the pitch pine, the sterile flowers now turned reddish. The white pine is lighter-colored, and all but a very little indeed is effete. In the white pine it is a dense cluster of twenty or thirty little flowers about the base of this year's shoot.

I did not expect to find any pollen, the pond was so small and distant from any wood, but I thought that I would examine. Who knows but the pollen of various kinds floating through the air at this season may be the

[1] *Vide* June 20 and 22, 1858.

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source of some of the peculiar perfumes which are not traceable to their sources?

Noticed a dead *Emys picta* on its back, — dead a month or two. The head was gone, and of course all the insides, and there was a hole in front of its hind legs on each side; the legs left. Was not this killed just as the one at Tall's Island?

That meadow-grass which emits the peculiar glaucous sheen from its bent and waving surface is the *Carex stricta*, either in tufts or growing thinly. (*Vide* 15th.) *Carex lupulina*, say four or five days, or maybe a week, at Little Truro Pond-hole. This in plenty just at the Hill Landing old bridge site.

Saw the pigeon-egg puffball formed on the 19th.

Started up a nighthawk in the dry field near the pond-hole. Probably they affect these dry and gravelly fields, as at Truro, where the small fescue grass grows and some tufts of *Carex scoparia* (?).

Tall fescue grass.

Eleocharis, the two small still in bloom, especially the smallest.

June 22. River at 6 A. M. eleven and fifteen sixteenths inches above summer level, having risen only seven sixteenths in the night. At 7 P. M. it is fifteen and one eighth above summer level.

I see minnows by the shore half an inch long.

Rice tells me that he saw in a mud-hole near the river in Sudbury, about a fortnight ago, a pout protecting her ova, which were in a ball about as big as an apple, all exposed, not at all hatched (I think he said on a stick),

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under which she swam. There were also pouts of various sizes about there, some only two inches long (!), says his son William.

Hear the peculiar peep of young golden robins on the elms this morning.

What is that great toothless, thin-shelled green clam which Rice brought from the same mud-hole mentioned above, — just six inches long, three inches high, and two and three quarters broad? Very green, with rays. A handsome shell.[1]

There is a strong northeast wind this afternoon, the thermometer 60° only at 12.30 P. M. and 65 at 5 P. M. But it is remarkably cold in the wind, and you require a thick coat. 65° now, with wind, is uncomfortably cold. I hear that it has killed some birds. Martins, etc., found dead in neighbors' yards.

The heavy rain of the 20th with the cold of the 21st has killed some birds. A martin and another bird were found dead in Wheildon's garden.

The leaves are now rapidly becoming hard and glazed, acquiring firmness as well as a darker color.

2 P. M. — To Great Meadows.

At Moore's Swamp the *Carex comosa* (?).

A painted turtle digging to lay in wood-path at 3.30 P. M. The throat of the hole in this hard ground is only seven eighths of an inch to an inch wide, and the hole is now about two inches deep and about the same in width beneath, expanding in all directions beneath, but chiefly toward the head of the turtle.

On the northeast side of the Great Fields there are

[1] *Anodon fluviatilis.*

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two or three little patches of sand one to two rods across with a few slivers of arrowhead stone sprinkled over them. It is easy to find an arrowhead if it is exposed. These spots are plowed only by the wind and rain, and yet I rarely cross them but I find a new arrowhead exposed.

The latest aspens at Holbrook's Hollow probably did not leaf till about a week ago, or the middle of June. I saw them on the 7th as well as to-day. They have now grown an inch.

Observe the tops of the flowering fern killed by frost along the south edge of the Great Meadows last night. These ferns are very tender and betray it.

I walk straight across the meadow from west of Holbrook's to the river, and the prevailing grasses were *Scirpus Eriophorum* (out several days), *Carex stellulata*, *C. bullata*, with oftenest two *fertile* spikes, methinks; this the order of their prevalence.[1] *Alopecurus geniculatus* in the Great Meadow path quite fresh, say several (three or four) days.

The pretty new moon in the west is quite red this evening.

June 23. River at 7 A. M. fifteen inches above summer level, having fallen.

A sparrow's nest with three fresh eggs in a hollow of a willow, two and a half feet from ground, at my boat's place. The bird has the usual marks, except perhaps the spot on the breast is more obvious, and the lines over the eyes more white and distinct. The eggs have a

[1] *Vide* June 16, 1859.

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much *bluer*-white ground than those I have, and beside are but slightly spotted with brown except toward the larger end. The chip of the bird is metallic, not the hoarse chip of the spring song sparrow. *Vide* eggs in collection.[1]

2 P. M. — To Bare Hill road.

This is a decidedly dogdayish day,[2] foretold by the red moon of last evening. The sunlight, even this forenoon, was peculiarly yellow, passing through misty clouds, and this afternoon the atmosphere is decidedly blue. I see it in the street within thirty rods, and perceive a distinct musty odor.

First *bluish, musty* dog-day, and sultry. Thermometer at two only 85°, however, and wind comes easterly soon and rather cool.[3]

The foliage is now thick and for the most part dark, and this kind of weather is probably the result of this amount of shadow; but it grows cooler with easterly wind before night.

I suspect that it may be true, as said, that the first half of June is cooler than the last half of May, on this account.

Smilacina racemosa, how long? *Agrostis scabra*,[4] pond path at east end of Walden. *Poa compressa* may fairly begin on the railroad at Walden; also piper grass just begun.

I see a young *Rana sylvatica* in the woods, only

[1] *Vide* June 25, 1856.
[2] And the 24th also.
[3] As it does the 24th.
[4] Probably *vulgaris*.

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five eighths of an inch long. Or is it a hylodes? — for I see a faint cross-like mark on the back and yet the black dash on the sides of the face.

At 7 P. M. the river is fifteen and three fourths inches above summer level.[1]

It rained hard on the 20th and part of the following night, — two and one eighth inches of rain in all, there being no drought, — raising the river from some two or three inches above summer level to seven and a half inches above summer level at 7 A. M. of the 21st.

At 7 P. M.	of the 21st,	11½ inches above summer level.
6 A. M.	22d,	11⅝
7 P. M.	22d,	15⅛
7 A. M.	23d,	15
7 P. M.	23d,	15¾

Thus two and one eighth inches of rain at this season, falling in one day, with little or no wind, raises the river while it is falling some four inches; on the next day it rises four more; the next night it rises seven sixteenths inch more; the next day (second after the rain) it rises three and three sixteenths inches; the next night it falls one eighth of an inch; it rises again three fourths of an inch, or five eighths absolutely; *i. e.*, it rises still the third day after the rain. That is, after a remarkably heavy rain of one day it does not rise as much in a night as it ordinarily falls in a day at this season.

June 24. 2 P. M. — To Clamshell.

The dogdayish weather continues.

[1] At height for this rise.

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The leaves generally are eaten when young and tender, as the leaves of melons (squashes) as soon as they expand a little. When they become more hard and glazed they are less edible. Hence this and earlier is the season for galls of various kinds. The pads are already extensively eaten. I do not know what eats those shot-like lines, but I see the pads, especially of the yellow lilies, with many little black or dark-brown grubs on them (no doubt hatched on them), annular, and yellow beneath, and now eating them but not eating through, making crinkled lines all over them.

Notice no young breams in the nests yet.[1]

That hilly road through Baker's land to Bare Hill is a true up-country road with the scent of ferns along it. There are birches, etc., enough in the road for bean-poles and to stick your peas with, and the man who has just built him a true country-house there is now indulging himself with pea-brush probably for the first time. The brush five times as high as his peas, which are now in bloom.

Have seen the flowering fern ripe for some days.

Saw young bluebirds fully grown yesterday, but with a feeble note and dull colors.

Start a woodcock from amid ferns.

Common curled dock, some time. Notice the red cups of the tops of trumpet-weed a foot [or] two high.

All plants leafed, say the middle of June, and summer commenced. River begins then to wear its summer aspect.

[1] *Perhaps* I do July 2d.

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I perceive the rank, dog-like scent of meadow-rue. See white lily buds.

June 25. 2 P. M. — To Dugan Desert.

I see a female marsh hawk, beating along a wall, suddenly give chase to a small bird, dashing to right and left twenty feet high about a pine.

There are no turtle-tracks now on the desert, but I see many crow-tracks there, and where they have pecked or scratched in the sand in many places, possibly smelling the eggs!? Also the track of a fox over the sand, and find his excrement *buried* in the sand, and the crows have dabbled in the sand over it. It is full of fur as usual. What an unfailing supply of small game it secures that its excrement should be so generally of fur!

As near as I can make out with my glass, I see and hear the parti-colored warbler[1] at Ledum Swamp on the larches and pines. A bluish back, yellow breast with a reddish crescent above, and white belly, and a continuous *screeping* note to the end.

At evening up the Assabet.

7 P. M., river twelve and a half inches above summer level.

The water of the Assabet is now generally whitened with the down of the black willow floating on it, yet it is not yet collected in very dense masses, not quite in the prime of its fall. The coarsest kind of lint that falls on the stream. The phalaris grass, now maybe in its prime, is, with its great white spike lifted over [?] its rank

[1] Yes.

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blades, eighteen inches above, perhaps the most conspicuous grass we have in Concord (or hereabouts, except the phragmites). Will soon close up into a narrow spike.

Scirpus lacustris, some days.

Hear four or five screech owls on different sides of the river, uttering those peculiar low screwing or working, ventriloquial sounds. Probably young birds, some of them, lately taken flight.

Farmers are just beginning their June-grass haying.

The *Glyceria pallida* (?)[1] grows in that ditch at the little brook on the Corner road, close to the road on the south side in A. Wheeler's (?) land.

June 26. Still hazy and dogdayish.

Go to the menagerie in the afternoon.

At 5 P. M., — river ten and a half inches above summer level, — cross the meadow to the Hemlocks.

The blue-eyed grass, now in its prime, occupies the drier and harder parts of the meadow, where I can walk dry-shod, but where the coarser sedge grows and it is lower and wetter there is none of it. I keep dry by following this blue guide, and the grass is not very high about it. You cross the meadows dry-shod by following the winding lead of the blue-eyed grass, which grows only on the firmer, more elevated, and drier parts.

The hemlocks are too much grown now and are too dark a green to show the handsomest bead-work by contrast.

Under the Hemlocks, on the bare bank, apparently the *Aira flexuosa*, not long.

[1] No. Torrey's *Poa dentata*.

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Young black willows have sprouted and put forth their two minute round leafets where the cottony seeds have lodged in a scum against the alders, etc. Leafets from one fortieth to one twenty-fifth of an inch in diameter. When separated from the continuous film of down they have a tendency to sink.

The Canada naiad (?), which I gathered yesterday, had perhaps bloomed. Thought I detected with my glass something like stamens about the little balls.

June 27. — 2 P. M. — Up Assabet to Farmer's.

See on the open grassy bank and shore, just this side the Hemlocks, a partridge with her little brood. Being in my boat, I went within three rods, and they were hardly scared at all. The young were but little bigger than chickens four or five days old, yet could fly two or three rods. The partridge now takes out her brood to feed, all the country over; and what an extensive range they have! — not confined to a barnyard.

To-day it is cool and clear and quite windy, and the black willow down is now washed up and collected against the alders and weeds; the river mostly swept of its dust and looking more sparkling.

Farmer says that he found on the 24th a black snake laying her eggs on the side of the hill between his peach-orchard and the ledge in the woods. He showed me the place to-day. The hole was about three inches long by one wide and four or five inches deep, in a slanting direction. He found the snake lying with her head and tail both

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at once in the hole, occupied with laying; and she had then layed twelve eggs. He pressed out two more, — fourteen in all. They were not connected together, and were twice as large as the sternothærus' egg; soft-shelled. He left them on the ground, but when he went there this morning he saw some crows devour them before his eyes. This hole was not in sand, but in rather lean pasture sod, and hard, freshly made. It bore a general resemblance to a turtle's hole. Was close by where his uncle (?) tried to dig through to the other side of the world. Dug more or less for three years. Used to dig nights, as long as one candle lasted. Left a stone just between him and the other side, not to be removed till he was ready to marry Washington's sister. The foxes now occupy his hole.

Holcus lanatus, a week or ten days, Hosmer's field on Assabet, north of Poke-logan. *Juncus tenuis*, three or four days.

Farmer calls the flowering fern "staghorn;" says it is the common name with farmers.

His bees are swarming, all collected over the outside of the hive.

River at 6 P. M. seven and five eighths inches above summer level.

The pine shoot which on the 19th had grown sixteen and a quarter inches is now twenty and three quarters long, or has grown four and a half inches in eight days, a little more than half an inch a day. It had evidently grown much faster before.[1]

[1] *Vide* July 4th.

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Get from Farmer specimens of barley and wheat, and, in the former, apparently *Bromus secalinus* [1] (?); none of them yet out.

June 28. — Assabet Bath and Sunset Interval.

On the 25th I first noticed that the black willows — the sterile ones, not whitened with down — were just begun to be handsome, with their light ethereal green against other trees. They are now getting to be sufficiently thick.

This month, it must be 85° at 2 P. M. and *still* to make hot weather. 80° with wind is quite comfortable.

June-grass is now generally browned atop, its spikes being out of bloom and old. Herd's-grass out, two or three days.

I now see and hear many young birds about; young barn swallows on telegraph-wire, etc.

Farmer said yesterday that he thought foxes did not live so much in the depth of the woods as on open hillsides, where they lay out and overlooked the operations of men, — studied their ways, — which made them so cunning.

The 21st I began to notice the *Festuca ovina* in dry pastures, prevailing and so marking a season. Fowl-meadow grass, though not quite in bloom, has now begun to make an impression on the inlands and in the meadows, with its dense-growing recurved or drooping green tops. *Panicum latifolium*, how long?

I see no tortoises laying nowadays, but I meet to-day with a wood tortoise which is eating the leaves of the

[1] *Vide* 30th.

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early potentilla, and, soon after, another in Hosmer's sandy bank field north of Assabet Bridge, deliberately eating *sorrel*. It was evidently quite an old one, its back being worn quite smooth, and its motions peculiarly sluggish. It continued to eat when I was within a few feet, holding its head high and biting down at it, each time bringing away a piece of a leaf. It made you think of an old and sick tortoise eating some salutary herb to cure itself with, and reminded me of the stories of the ancients, who, I think, made the tortoises thus cure themselves with dittany or origanum when bitten by a venomous snake. That is, it impressed me as if it must know the virtues of herbs well and could select the one best suited [to] its condition of body. When I came nearer, it at once drew in its head. Its back was smooth and yellowish, — a venerable tortoise. When I moved off, it at once withdrew into the woods.

See two of those remarkably brilliant beetles near the caving edge here, with copper and green reflections (head green), and blue ones. They are sluggish and can be transported on a leaf.

On the alder leaves by the riverside in Sunset Interval, I see countless small black miller-like insects three eighths of an inch and of this form: but all of them had not feelers.

I think they were the same that hover in a swarm over the water at evening.

June 29. Dogdayish and showery, with thunder.

At 6 P. M. 91°, the hottest yet, though a thunder-

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shower has passed northeast and grazed us, and, in consequence, at 6.30 or 7, another thunder-shower comes up from the southwest and there is a sudden burst from it with a remarkably strong, gusty wind, and the rain for fifteen minutes falls in a blinding deluge. I think I never saw it rain so hard. The roof of the depot shed is taken off, many trees torn to pieces, the garden flooded at once, corn and potatoes, etc., beaten flat.[1] You could not see distinctly many rods through the rain. It was the very strong gusts added to the weight of the rain that did the mischief. There was little or no wind before the shower; it belonged wholly to it. Thus our most violent thunder-shower followed the hottest hour of the month.

June 30. Try the temperature of the springs and pond. At 2.15 P. M. the atmosphere north of house is 83° above zero, and the same afternoon, the water of the Boiling Spring, 45°; our well after pumping, 49°; Brister's Spring, 49°; Walden Pond (at bottom, in four feet water), 71°; river at one rod from shore, 77°.[2] I see that the temperature of the Boiling Spring on the 6th of March, 1846, was also 45°, and I suspect it varies very little throughout the year.

If you paw into sand, both by day and night, you find the heat to be permanently greatest some three inches (to-day) below the surface, and this is about [the] depth at which the tortoises place their eggs. Where the tem-

[1] There was the same sudden and remarkably violent storm about two hours earlier all up and down the Hudson, and it struck the Great Eastern at her moorings in New York and caused some damage.

[2] 2 P. M., the 1st of July, the air is 77° and the river 75°.

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perature is highest permanently and changes least between night and day.

At 2 P. M. the river is six inches above summer level.

Generally speaking, the fields are not imbrowned yet, but the freshness of the year is preserved. Standing on the side of Fair Haven Hill the verdure generally appears at its height, the air clear, and the water sparkling (after the rain of yesterday), and it is a world of glossy leaves and grassy fields and meads.

The foliage of deciduous trees is now so nearly as dark as evergreens that I am not struck by the contrast.

I think that the shadows under the edge of woods are less noticed now because the woods themselves are darker. So, too, with the darkness and shadows of elms.

Seen through this clear, sparkling, breezy air, the fields, woods, and meadows are very brilliant and fair. The leaves are now hard and glossy (the oldest), yet still comparatively fresh, and I do not see a single acre of grass that has been cut yet. The river meadows on each side the stream, looking toward the light, have an elysian beauty. A light-yellow plush or velvet, as if some gamboge had been rubbed into them. They are by far the most bright and sunny-looking spots, such is the color of the sedges which grow there, while the pastures and hillsides are dark-green and the grain-fields glaucous-green. It is remarkable that the meadows, which are the lowest part, should have this lightest, sunniest, yellowest look.

Now that season begins when you see the river to be so regularly divided longitudinally into pads, smooth water, and sparkling ripples between, in a clear day.

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The older white oak leaves have now a blue or dark-purplish bloom on their cheeks or prominences, which you can rub off, leaving them green.

The grasses of Sedge Path are the early sedge (which is much of it turned by a smut), *Festuca ovina*, and the *Carex siccata*. *Bromus secalinus* by Walden, say yesterday. This and that in Farmer's barley the same, though some is downy and some smooth, and it does not open much in bloom because the glume does not reach beyond middle of second flower.

I hear no toads to speak of, of late, except a few at evening.

See in the garden the hole in which a toad sits by day. It is a round hole about the width of his body across, and extending under one

side about the length of my little finger; in the main, indeed, shaped like a turtle's nest, but not so broad beneath and not quite so deep. There sits the toad, in the shade, and concealed completely under the ground, with its head toward the entrance, waiting for evening. This was on the side of a corn-hill.

They are now cutting clover. *Scirpus subterminalis* is apparently just beginning at the Pout's Nest, the water being very low.

There is a turnip-like weed now in flower and going to [seed], a pest in grain-fields; same as I noticed formerly in Stow's field; say six weeks. Is it *Brassica campestris*?[1]

[1] *Vide* Aug. 19th.

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VIII

JULY, 1860

(ÆT. 42–43)

July 1. 2 P. M. — To Well Meadow.

River three and seven eighths above summer level.

Rattlesnake grass is just beginning. The slender and leafy panic of the meadows (tall for size), say a week. Saw a large black and blue (edged) butterfly yesterday. Fowl-meadow grass.

Notice those slate-colored spots on a rough goldenrod leaf, answering to the crimson on red maples, surrounded by a light ring and centred with greenish.

The hellebore fall is now conspicuous and fairly under weigh. The cabbage but just begun to fall. I see one leaf of the last fully eighteen inches by thirteen.

Brachyelytrum grass, apparently just begun, or a day.

While reclining on the sedge at end of town-bound path, by the *scoparia*, I see a warbler deliberately investigating the smooth sumachs and their old berry-bunches, in various positions. It is a slaty blue above, with a bright-yellow front-head and much yellow on the wings (at angle, etc.), a very distinct black throat, triangularwise, with a broad black line through the eyes or side-head, a forked tail which is dark beneath; belly and vent white or whitish. It is undoubtedly the *Sylvia chrysoptera*, or golden-winged warbler, which I think must be breeding here.

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I see young partridges not bigger than robins fly three or four rods, not squatting fast, now.

Returning over the causeway, the light of the sun was reflected from the awns of a grain-field (probably wheat) [1] by Abiel Wheeler's house so brightly and in such a solid mass as to far surpass in amount of light the densest whiteweed thereabouts, and at first impress you as if it were whiter than whiteweed, but in fact it was *not* white, but a very bright sunny gleam from the waving phalanx of awns, more calculated to reflect the light than any object in the landscape.

July 2. A. M. — To lilies above Nut Meadow.

The phalaris heads are now closed up, and it looks like another kind of grass, — those heads which stood so whitish some eighteen inches above their broad green leaves. The bayonet rush is not quite out.

The lilies are not yet in prime. A large one measures six and a half inches over by two and a half high.

Nowadays hear from my window the constant tittering of young golden robins, and by the river fields the alarm note of the peetweets, concerned about their young.

Does not the summer régime of the river begin say about July 1st, when the black willow is handsome and the beds of front-rank polygonum are formed above water?

Yesterday I detected the smallest grass that I know, apparently *Festuca tenella* (?), apparently out of bloom, in the dry path southwest of the yew, — only two to four inches high, like a moss.

[1] Yes.

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July 3. 2 P. M. — To Holbrook's meadow and Turnpike to try springs.

Looked for the marsh hawk's nest (of June 16th, *q. v.*) in the Great Meadows. It was in the very midst of the sweet-gale (which is three feet high), occupying an opening only a foot or two across. We had much difficulty in finding it again, but at last nearly stumbled on to a young hawk. There was one as big as my fist, resting on the bare, flat nest in the sun, with a great head, staring eyes, and open gaping or panting mouth, yet mere down, grayish-white down, as yet; but I detected another which had crawled a foot one side amid the bushes for shade or safety, more than half as large again, with small feathers and a yet more angry, hawk-like look. How naturally anger sits on the young hawk's head! It was 3.30 P. M., and the old birds were gone and saw us not. Meanwhile their callow young lie panting under the sweet-gale and rose bushes in the swamp, waiting for their parents to fetch them food.

June is an up-country month, when our air and landscape is most like that of a more mountainous region, full of freshness, with the scent of ferns by the wayside.

The scheuchzeria is full of green fruit fully grown at Gowing's. It forms the upright grass-like plant next the more open pool, rising amid the floating sphagnum, with the spatulate sundew interspersed with it, and a very little of the leaden-sheathed eriophorum and a sprig or two of cassandra. The *Glyceria aquatica* has been out some time and is now apparently done at

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Holbrook's meadow. The *Agrostis scabra*, the fine, long, slender branched fly-away grass, almost out, in what was Moore's Swamp by Bedford road. Also, in the ditch on the south side the road there, partly procumbent at base, a rather delicate and pale rough-flowered grass with (in this case) the paleæ so projecting at tip as to give it a dentate appearance. I called it last year the *Poa dentata* of Torrey. Now in its prime here, and larger specimens in the ditch by the Corner road, south side, southwest of stump fence, say ten days. The paleæ have a white or scarious tip and just below it a dark transverse line.

July 4. Gentle rain in the night (last).

The white pine shoot which on the 19th of June had grown sixteen and a quarter inches and on the 27th twenty and three quarters is now twenty-three and an eighth inches long.

2 P. M. — Look at springs toward Dugan's and White Pond.

Standing on J. P. Brown's land, south side, I observed his rich and luxuriant uncut grass-lands northward, now waving under the easterly wind. It is a beautiful Camilla, sweeping like waves of light and shade over the whole breadth of his land, like a low steam curling over it, imparting wonderful life to the landscape, like the light and shade of a changeable garment, waves of light and shade pursuing each other over the whole breadth of the landscape like waves hastening to break on a shore. It is an interesting feature, very easily overlooked, and suggests that we

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are wading and navigating at present in a sort of sea of grass, which yields and undulates under the wind like water; and so, perchance, the forest is seen to do from a favorable position.

None of his fields is cut yet.

Early, there was that flashing light of waving pine in the horizon; now, the Camilla on grass and grain.

Juncus bufonius, probably several days in some places.

The sedgy hollows, table-lands, and frosty places in the woods now most beautiful, the sedge most fresh and yellowish-green, a soft, dry bed to recline on. For example, that place south of Ledum Swamp, the sedge, especially in the old path, falling every way like cowlicks on an unkempt head. When we enter it from the west, with the sun shining between thundery clouds, it is all lit with a blaze of yellow light, like a pasture on Mt. Washington, nearer the sun than usual.

How beautiful the dark-green oak leaves now! How dark the chincapin oak leaves! Now the pines are almost indistinguishable by color amid the deciduous trees.

The large johnswort now begins to be noticed generally, — a July yellow.

Scared up a young bobolink, which flies a couple of rods only.

A few toads still ring at evening, and I still notice, on the rocks at White Pond, the pine pollen yellowing them, though it fell some time ago.

7 P. M., river is one and three eighths above summer level.

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July 5. Rain last night and all to-day.

I notice of late the *Osmunda regalis* fully grown, fresh and handsome.

July 6. Rained last night, as well as all yesterday and some of the night before. Three quarters of an inch has fallen.

6 A. M., river two and seven sixteenths above summer level. 7 P. M., three and five eighths above summer level. Thus three quarters of an inch has raised it only two and a quarter inches.

July 7. 7 A. M. River two and a half above summer level.

East wind and hazy.

I see a flock of some twenty-five crows. Probably the young are just grown.

Agrostis scabra. Cyperus filiculmis, a day. *Rhyncospora fusca*, apparently beginning (see stigmas). *Glyceria elongata* at little snapping turtle or Hemlock ditch, apparently done, say ten days; panicle not narrow now, more than *G. fluitans*.

Have begun to gather currants three or four days. Notice few ripe blueberries.

June 30th, July 3d, 4th, 6th, and 7th, I carried round a thermometer in the afternoon and ascertained the temperature of the springs, brooks, etc.

The springs, in the order of coldness, stand thus: —

1	Boiling Spring	45°	June 30
2	Dennis's railroad	46½°	July 7
3 & 4	Henry Shattuck's two	48°	July 6

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5	Violet Sorrel (N. Barrett's)	48°	July 6
6	E. Hosmer's dam	48°	July 3
7	J. Farmer's	48°	July 6
8	Beyond Peter's	48° to 49°	July 3
9	Brister's	49°	June 30
10	Corner Spring (W. Wheeler's)	49°	July 4
11	Minot Pratt's	49°	July 6
12	Dugan's	50°	July 4
13	Cheney's	50°	July 3, 6 P.M., (air 72°) (July 4, 2 P.M., air 83 and spring 50 + still)
14	Garfield's (Moore's Swamp)	52°	July 3
15	John Hosmer's	54°	July 4
16	Assabet	54°	July 7
17	Oak Meadow	54°	July 6
18	Wheeler's	56°+	July 7

Omitting the last, as too much enlarged artificially and so warmed, the average temperature of seventeen is 49½°. Omitting also the 1st, 2d, 14th, 15th, 16th, and 17th, *i. e.* the extremes, the average of the remaining eleven is 48.7°, and they do not differ more than 2° from one another. On the whole, then, where I had expected to find great diversity I find remarkable uniformity. The temperature of good or cool springs in this town at this season varies very little indeed from 49°, and I should be surprised to meet with one considered cold which varied more than 3° from this.

The temperature of our well was 49°, June 30th; E. Hosmer's northernmost 49°, July 6; southernmost 49½°, July 6. 49° would seem to be the temperature at present very generally of water at a certain depth in the ground. This is very near the mean annual temperature of the air here.

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The temperature of the air in the meanwhile was as follows, on the north side of our house: —

June 30	July 3	July 4	July 6	July 7
2.15 P. M., 83°	2 P. M., 82°	2 P. M., 83°	6 A. M., 57° to 60°	7 A. M., 56°
	6 P. M., 72°		2 P. M., 75°	2.30 P. M., 76°
			7 P. M., 75°	

The average temperature of the air at 2 P. M. for the five days of my observations was 80°, and the greatest variation during the observations was some 10° in the course of the afternoon. But I presume that this made no odds with the temperature of the springs, for Cheney's Spring stood 50° + both at 6 P. M., the 3d, when the thermometer was at 72°, and at 2 P. M., the 4th, when it had risen 11° higher. I should say, then, that a spring colder than 48° was remarkably cold; 48° to 50°, inclusive, quite cold, a very good cold spring; above 50° and not above 54°, cold; above that and not above 58°, *tolerable* merely. Or, I should rather say that only 50° and below was *cold* for a *spring;* say below 48°, remarkably cold; between that and 50°, inclusive, cold; 50° to 54°, inclusive, *pretty* cold; thence to 58°, inclusive, merely tolerable to drink.

Of the above springs, all but Nos. 1, 4, 7, 11 (?), and 17 are distinctly just at the base of a hill or bank and on the edge of a meadow or river. Apparently the water which percolates through the hill or upland, having reached a stratum saturated with water and impervious to it, bursts out in a spring. No. 1 (the coldest) only bursts out higher up a hillside, and 4, 7, and 17, a little

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within meadows. No. 11 should perhaps be included among the mass.

Of course an indefinite number of such springs may be found and cleared out along the bases of the hills, as wells dug anywhere are pretty sure to come to water of a similar character. The above are such as have been discovered and used, — been kept open, — or which have kept themselves clear. Frequently, in ditching his meadow, the farmer strikes on a powerful spring, and if it is cold enough and convenient to his house or work, he stones it up or sinks a tub or barrel there.

Of the above, Nos. 3, 6, 8, 13, 15 are, or have been, barrelled or tubbed; Nos. 5 and 13 stoned about (the last with steps down to it); Nos. 1 and 18 much deepened and enlarged and more or less covered. The remaining ten are in a natural state, only kept open more or less by use. 8, 9, and 14 have, or have had, a box for minnows in or near them. Perhaps the most natural well of them all is No. 11, Minot Pratt's, filling an oblong angular cavity between upright rocks.

Where the bottom is gravelly, and they are made deep by being barrelled or stoned up, they are a peculiarly clear and crystalline-looking water, Walden-Pond-like, quite unlike the river and brooks, — a peculiar clearness with whitish sands at the bottom, — perhaps because too cold for vegetation to defile them.

Each farmer values his spring and takes pride in it. He is inclined to think it the coldest in the neighborhood.

Each one is the source of a streamlet which finds its

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way into the river, though possibly one or two of them may dry up some seasons. Only one to my knowledge visibly bubbles up, — or did before interfered with, — *viz.* the Boiling Spring, which is the coldest. This would indicate that its reservoir is still higher considerably and deep within the hill. You commonly see the water coming in more or less copiously through the gravel on the upper side, sometimes from under a rock in a considerable stream and with a tinkling sound.

The coldest, as I notice, have the clearest and most crystalline or Walden-Pond-like look.

Henry Shattuck's two were of the same temperature, though one was in the open meadow at the head of a ditch, and the other in the bank and covered or boxed over. This shows that they come at once from a considerable depth in the earth and have no time to be warmed before they flow off. A rail standing on its end in one of his ditches was almost concealed, so deep is the mud in his meadow. He pointed out two or three in his ditches "as big as your body" and of unknown depth.

No. 1 is at the head of them all, and no doubt was used by the Indians. It is used by the Fitchburg Railroad for their locomotives. No. 2 was made in cutting for the railroad, and is used by the track-repairers. Some are far away and only used by hunters and walkers and berry-pickers. Some are used in haying-time only. Some are so cold and clear, and so near withal, as to be used daily by some family, who "turn up their noses" at the well. Others, as Dugan's, are instead of the well. One, as Wheeler's, has had five

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hundred dollars expended on it. No. 6 was found by Hosmer when he built his dam, and he imagines that it has medicinal properties, and used accordingly to come to drink at it often, though half a mile from his house. Some will have a broken tumbler hid in the grass near, or a rusty dipper hung on a twig near by. Others, again, drink through some hollow weed's stem. None are too cold for the *Rana fontinalis*, which will hardly make room for your face when you stoop to drink. Some are only known to myself and friends, and I clear them out annually.

I suspect that most of them never freeze entirely over.

The brooks stood thus, the temperature of the [atmosphere] at 2 P. M. being (as before) about 80°: —

July 7	Hemlock Brook (Grackle Swamp), where I saw the little snapping turtle	61	1
8	Saw Mill Brook, at Turnpike	62	2
4	Nut Meadow, at Brown's fence	64	3
4	" " (road by Dugan's)	65	4
8	Brook between Emerson and Connor	65	5
9	Swamp Bridge (back road) (air 80½ at 2 P. M.)	70	6
9	Miles Swamp Brook (Conantum)	70½	7
6	Dakin's, in road beyond Winn's	73	8
6	Below Francis Jarvis's, in road	74	9
8	Mill Brook (Turnpike Bridge)	75	10
8	Mill Brook (East Quarter schoolhouse)	78	11
		11)757½	
		$68\frac{9}{11}$	
		say 69	

The first five may be considered cold brooks. The 1st, 2d, and 5th come directly out of cold, peaty, or else

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shady, swamps. This suggests that the soil of such swamps, though cleared and cultivated, must be many degrees cooler than that of dry, open uplands, and demand different crops and treatment.

The river stood thus at my boat's place:—

June 30,	2 P. M., air 83°,	one rod from shore,	77°	
July 1,	2 P. M., air 77°,	" " " "	75°	
July 3,	2 P. M., air 82°,			
	6 P. M., air 72°,	" " " "	75°	
July 4,	2 P. M., air 83°,	" " " "	78°	(at Clamshell)
		in middle,	76°	(" ")
		four feet from shore,	79°	(" ")
July 6,[1]	6 A. M., air 57° to 60°,	one rod from shore,	67°	
		in middle,	69°	
	2 P. M., air 75°,	one rod from shore,	76°	
	7 P. M., air 75°,	one rod off,	73°	
July 7,	7 A. M., air 56°,	one rod off,	69°	
		in middle,	70½°	
	2.30 P. M., air 76°,	in middle,	75°	
		one rod off,	74° to 75°	

Average temperature of river at one rod from shore at 2 P. M., 76°, or 7° more than that of the brooks tried. As the brooks are larger they approach nearer to the river in temperature.

It will be seen by the observations of the 4th, 6th, and 7th that there is from one and a half to two degrees difference between the temperature of the river at one rod from shore and in the middle, and that in the morning the middle is the warmest, at 2 P. M. the coldest. If the weather is colder than usual, the difference between the side and middle is less. Hence,

[1] After ¾ inch rain on the 5th.

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evidently, fishes will change their ground every day and night, as they prefer warmer or cooler water.[1]

The temperature of the Assabet at the stone-heaps, in the middle (both at top and bottom, it being only some three feet deep), on the 7th of July, at 4.30 P. M., was 75°, or the same as the main stream at 2.30 P. M.

The following water also was tested :[2] —

June 30,	Walden Pond, at bottom in four feet water,	71°
July 4,	White Pond, top, five feet from shore,	76°
July 3,	Gowing's Swamp (edge of middle pool),	78°
	" " in the sphagnum generally,	77°
July 3,	Merriam's cow-watering place, beyond Gowing's Swamp,	83°
July 3,	Spring in Holbrook's ditch,	58°

Places where cows drink were apparently at this date from 75° up to 83°.

In the afternoon of July 3d, when the air at our house at 2 o'clock was 82°, a breezy afternoon, [on] the little arrowhead desert on Sted Buttrick's land on the Great Fields, the thermometer, being buried an inch and three quarters deep, rose to 90°; at three inches deep, to 86°; lying flat on the surface, back up, to 86°; held in air above to 84°. That is, at this time of day, say mid-afternoon, it is warmer at two to three inches beneath the surface in such sand (where turtles bury their eggs) than in the air above. Indeed, I should think that in the hottest weather the eggs would be half cooked here.

At two to three inches deep in a half-deserted large

[1] *Vide* June 22d and 30th, 1855; also July 2d and 3d, 1855.

[2] *Vide* Aug. 23d and 24th and Aug. 10th; and Aug. 22d for Bittern Cliff.

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ant-hill on Holbrook's path, it rose to 102°, — this was loose and gravelly, — or some 18° higher than in the air. This shows how much heat a sandy and porous soil may detain.

N. B. — My experiments were vitiated by my having to cover the thermometer with the sand which was taken up both from the surface and from below, and not waiting for the whole to acquire the same temperature with the surrounding soil of the same depth.

It appears that in a cold day at present the water of the river at 6 A. M. will be ten to fourteen degrees warmer than the air, and accordingly feels warm to the touch. In the translation into English of Cranz's "Greenland" from High Dutch (1767) I find "an elve or mountain spring," and again "Salmon elves, or the little streams from the hills."

July 8. Yesterday was quite hazy, with an east wind. This morning there is a cold mist, which soon becomes rain, — at 2.30 P. M. The thermometer is at 66°, and some sit by fires.

July 9. Clears up at noon.

See two handsome rose-breasted grosbeaks on the Corner causeway. One utters a peculiar squeaking or snapping note, and, both by form of bill and this note, and color, reminds me of some of those foreign birds with great bills in cages.

There is a smart shower at 5 P. M., and in the midst of it a hummingbird is busy about the flowers in the garden, unmindful of it, though you would think that

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each big drop that struck him would be a serious accident.

July 10. 2 P. M. — To Pleasant Meadow *via* Lincoln Bridge.

The *Festuca ovina* is a peculiar light-colored, whitish grass, as contrasted with the denser dark-green sod of pastures; as on the swells by the tin-hole near Brister's.

Entering J. Baker's great mud-hole, this cloudy, cool afternoon, I was exhilarated by the mass of cheerful bright-yellowish light reflected from the sedge (*Carex Pennsylvanica*) growing densely on the hillsides laid bare within a year or two there. It is of a distinct cheerful yellow color even this overcast day, even as if they were reflecting a bright sunlight, though no sun is visible. It is surprising how much this will light up a hillside or upland hollow or plateau, and when, in a clear day, you look toward the sun over it late in the afternoon, the scene is incredibly bright and elysian. These various lights and shadows of the grass make the charm of a walk at present.

I find in this mud-hole a new grass, *Eatonia Pennsylvanica*, two and a half feet high.

Juncus, apparently *marginatus*, say ten days.

July 11. Heavy rain in the night [of the] 10th–11th. An unusual quantity of rain within a week past; too much now for our garden. The lower leaves of vines yellowed.

To-day and yesterday are cool and comfortable days, with a breeze. Thermometer at 2 P. M., 70 to 77.

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2 P. M. — To Pine Hill.

Herd's-grass and red-top in prime. I often notice them growing in parallel rows of reddish and green, the seed apparently having fallen so.

Haying is now generally under way.

As I go along the railroad causeways, I am interested now, and of late, by those patches a rod or two over — amid the red-top, herd's-grass, etc., of A. Wheeler's meadow — of *Agrostis scabra*, that exceedingly fine slender-branched grass drooping and waving in the wind. It gives a pale pinkish(?)-purple sheen to those parts, completely monopolizing (apparently) the ground there. It makes the most purple impression of any grass. Call it early purple grass, as compared with the *Eragrostis pectinacea*. Probably it is not quite in prime. It is the most finely branched and slender-culmed for its size, and near at hand the most invisible of any grass at present, and less noticeable close at hand than in a favorable light at a distance. You will see, thus, scattered over a meadow, little flecks and patches of it, almost like a flat purplish cobweb of the morning, and it seems to recline on the other grasses. It is the finest hair that waves in the fields now; Proserpine's hair.

Find a yellow butterfly about dead, probably in consequence of the heavy rain of last night.

In the pool in Laurel Glen, *Glyceria acutiflora* almost.[1]

I look at a young fox at Derby's. You would say from his step and motions that his legs were as elastic

[1] Out long since and now going to seed generally and very abundant, in wettest part of Great Meadows, about Holt.

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as india-rubber, — all springs, ready at any instant to bound high into the air. Gravity seems not enough to keep him in contact with the earth. There seems to be a peculiar principle of resiliency constantly operating in him.

River at 7 P. M. eight and a half inches above summer level.

July 12. Hear a nuthatch in the street. So they breed here.

The best way to drink, especially at a shallow spring, or one so sunken below the surface as to be difficult to reach, is through a tube. You can commonly find growing near a spring a hollow reed or weed of some kind suitable for this purpose, such as rue or touch-me-not or water saxifrage, or you can carry one in your pocket.

Juncus militaris.

The river at 8 P. M. is eight and three quarters inches above summer level.

Just after the sun is set I observe the dewdrops on the pontederia leaves. (Do not know how early they begin to form.) Even when the leaf stands perpendicular, the drop is collected at the uppermost point, and then, on a slight jar or agitation of the water, runs down the leaf. This is the only broad and thick leaf that rises above the water, and therefore it appears to be the only one that collects the dew thus early.

A Mr. Bradshaw, taxidermist, carpenter, etc., etc., of Wayland, tells me that he finds the long-eared owl there in summer, and has set it up.

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July 13. 2 P. M. — To Little Truro.

You now especially notice some very red fields where the red-top grass grows luxuriantly and is now in full bloom, — a red purple, passing into brown, looking at a distance like a red-sandstone soil. The different cultivated fields are thus like so many different-colored checkers on a checker-board. First we had the June-grass reddish-brown, and the sorrel red, of June; now the red-top red of July. For a week — and if you look very closely, for a fortnight or more — past, the season has had a more advanced look, from the reddening, imbrowning, or yellowing, and ripening of many grasses, as the sweet-scented vernal (for some time generally withered) and the June-grass, and some grain, — rye, wheat, etc., — so that the fields and hillsides present a less liquid green than they did. The vernal freshness of June is passed. Our mowing-fields new laid down with herds'-grass, red-top, and clover — *i. e.* the second year — are red or reddish squares divided regularly with greener herd's-top [*sic*] in parallel lines, probably the seed, of different weight, having fallen thus, the red spaces often eight or ten feet wide. The various colors or tints of grasses, in some large pasture for instance, especially in cloudy weather, supply the place of light and shade. The pasture is distinctly parded with them half a mile off, — the very light, whitish *Festuca ovina*, the dark-green *Poa compressa*, and rounded yellow patches of sedge (*Carex scoparia*, etc.).

Observed last night young swallows roosting on the

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willows over the river, and for some days have seen them on the telegraph-wires.

Observed a huckleberry bush springing from the top of a large and high white pine stump that had been sawed off. It stood in the chink between the bark and the wood, and had evidently come from a seed dropped by a bird, which had blown into this crack.

A heavy shower (with thunder) just before noon this morning, and more in the west of us in the afternoon.

July 14. 2 P. M. — To Botrychium Swamp.

Botrychium Virginianum apparently in prime. *Alopecurus aristulatus* past prime. Pratt's Pond side. Perceive now the light-colored tops of chestnuts in bloom, and, when I come near them, an offensive, sickening odor, somewhat like that of the barberry blossoms, but worse.

Returning, I notice on a large pool of water in A. Heywood's cow-yard a thick greenish-yellow scum mantling it, an exceedingly rich and remarkable color, as if it were covered with a coating of sulphur. This sort of scum seems to be peculiar to cow-yards, and contrasts with that red one by the Moore's Swamp road last summer. Out of foulness Nature thus extracts beauty. These phenomena are observed only in summer or warm weather, methinks.

7 P. M. — On river.

Water ten and five eighths above summer level; probably about done rising.

The spartina grass.

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I look for dewdrops on the pontederia, but see none at first; but finally, looking in a still and shady place behind some willows, I see many drops fully formed sparkling in the light, at just eight minutes after seven by my watch (the sun sets at thirty-five minutes after seven; say, then, half an hour before sunset). But, it being windy, I did not notice any *generally*, even long after sunset.

Also looked to see if the lilies withdraw under water at night, as stated in Mrs. Lincoln's Botany. The buds which opened and closed to-day, and other buds, now rest half an inch or more deep in the water, which they would naturally do by their form and weight. When they open in the morning they will probably rest more buoyantly on the surface, but I have never discovered that they withdrew under water.

The fowl-meadow grass is now in prime and covering the islands very densely. It has a purplish tinge and a very green culm contrasting with its panicle.

The surface of the earth in summer is painted of various shades of green in mowing and pasture and meadow and some waste land by the grasses. The *Agrostis vulgaris* of pastures and hilltops is a dark green, the *Festuca ovina* a very light (even whitish) green. How rich some fields of red-top at present! Perfect squares, it may be, like rich carpets spread out, and contrasting with very different tints of green next to them.

The true grasses (excepting the grains) which thus at a distance paint the landscape *generally* at this season or earlier are (1) herd's-grass, (2) red-top, (3) *Agrostis scabra*, (4) blue-joint (?), (5) June-grass, (6) *Poa com-*

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pressa, (7) fowl-meadow, (8) sheep's fescue, (9) piper grass (?), (10) vernal grass, (11) canary grass, especially Nos. 5, 2, 8, 6, 1; but of these only one (8), probably, is indigenous, and Nos. 5, 6, 10, 11 are now generally done.

The *Cyperaceæ* which now or earlier color the landscape generally by their mass are (1) *Carex Pennsylvanica*, (2) *C. scoparia*, (3) *monile*, (4) *stellulata*, (5) *lanuginosa*, (6) *bullata*, (7) *siccata*, (8) *crinita*, (9) *lupulina*, (10) *Scirpus eriophorum*, (11) *Eleocharis acicularis*, (12) *Scirpus lacustris*, (13) eriophorums, etc. Nos. 1 and 7 give a yellow hue to upland open wilds or woodlands and dry hollows, where the forest has recently stood, — *not pastured*. 3, 4, 5, 6, 9, 10 make the mass of the sedge on the river meadows, of a general yellow hue; 2 and 8 flourish more about their edges; 11 greens the muddy banks at low water; and 12 stands in dark-green patches here and there along the muddy shores of the river.

July 15. It seemed to me yesterday that the foliage had attained its maximum of darkness, and as I ascended the hill at eve the hickories looked even autumnal. Especially I was struck by the dark but still perfect green leaf of the swamp white oak.

I hear this forenoon the *link link* of the first bobolink going over our garden, — though I hear several full strains of bobolinks to-day, as in May, carrying me back to Apple Sunday, but they have been rare a long time. Now as it were the very cope of the dark-glazed heavens yields a slightly metallic sound when struck.

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I hear on all sides these days the loud tinkling rattle of the mowing-machine, but, alas, the mower goes to the blacksmith's to whet his scythe only every second or third day!

P. M. — To Hill and Assabet Bath.

On Hill. — No crops clothe the earth with richer hues and make a greater impression of luxuriousness than the cultivated grasses. Field after field, densely packed like the squares of a checker-board, all through and about the villages, paint the earth with various shades of green and other colors. There is the rich glaucous green of young grain now, of various shades, depending on its age and kind; the flashing blades of corn which does not yet hide the bare ground; the yellowing tops of ripening grain; the dense uniform red of red-top, the most striking and high-colored of all (that is, cultivated); the very similar purple of the fowl-meadow (the most deep-piled and cumulous-looking, like down) along the low river-banks; the very dark and dusky, as it were shadowy, green of herd's-grass at a distance, as if clouds were always passing over it, — close at hand it is of a dark purplish or slaty purple, from the color of its anthers; the fresh light green where June-grass has been cut, and the fresh dark green where clover has been cut; and the hard, dark green of pastures (red-top) generally, — not to speak of the very light-colored wiry fescue there.

The solid square fields of red-top look singularly like bare ground at a distance, but when you know it to be red-top you see it to be too high-colored for that. Yet it thus suggests a harmony between itself and the

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ground. Look down on a field of red-top now in full bloom, a quarter of a mile west of this hill, — a very dense and red field, — at 2.30 P. M. of this very warm and slightly hazy but not dogdayish day, in a blazing sun. I am surprised to see a very distinct white vapor, like a low cloud in a mountainous country, or a smoke, drifting along close over the red-top. Is it not owing to the contrast between this hot noontide air and the moist coolness of that dense grass-field?

Then there is the cheerful yellowish green of the meadows, where the sedges prevail, *i. e.* yellowest where wettest, with darker patches and veins of grass, etc., in the higher and drier parts. I can just distinguish with my naked eye — knowing where to look — the darker green of pipes on the peat meadows two miles from the hill.

The potato-fields are a very dark green.

July 16. 2 P. M. — To Great Meadows by boat.

You notice now along the river, on the muddy shores, the dry (and closed) whitish heads of the canary grass, standing high above its yet fresh green leaves. It forms only narrow, dense patches a few rods in length. The banks of the Great Meadows are red-top, and (is it not?) *Agrostis scabra* (the fine long-branched, yet branching again often below the middle) and fowl-meadow on the lower parts of the bank commonly. The *Glyceria acutiflora* is abundant and now going to seed in the wettest part of the Holt portion of the meadow. That which I have called the *Poa dentata* of Torrey is a very common grass in ditches and other wet places, especially

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with the last-named at the Holt, and is now mostly done. I should think it might be an undescribed species of *Glyceria*.

Setaria viridis, Channing's garden, probably two or three days.

I notice the fruit of the bur-reed (opposite Prichard Shore), now large, pickle-green, and about as big as that of the upper Sudbury meadows; so I think it is the same, though not so rank.

In the bays by the riverside where the pads have been least eaten, I see at least three times as many of the three kinds mixed as can lie on that surface, one overlapping and crowding another and the more exposed curled up on their edges; but they are so much riddled already and eaten by insects that this abundant supply is needed. It is an abundant vegetable food apparently for many kinds. I see a large tuft of pontederia whose leaves have been slit longitudinally into a dozen parallel slits, — not always clear out, — and so they hang in ribbons; and there is a downy feather of a bird attached to one. Could it have been done by some water-fowl?

Pipes have been out of bloom apparently a long time.

Standing amid the pipes of the Great Meadow, I hear a very sharp creaking *peep*, no doubt from a rail quite near me, calling to or directing her young, who are meanwhile uttering a very faint, somewhat similar peep, which you would not hear if not very much inclined to hear it, in the grass close around me. Sometimes the old bird utters two short, sharp creaks. I look sharp, but can see nothing of them. She sounds

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now here, now there, within two or three rods of me, incessantly running in the grass. I had already heard, more distant, a more prolonged note from some waterfowl, perhaps a plover, if not possibly a male rail, hereabouts.

The *Ailantus glandulosus* (Warren's yard), in its height probably on Saturday, 14th, filled the streets with a disagreeable sickish odor much like that of the chestnut. I should put this, the chestnut, and the barberry together.

July 17. 2 P. M. — To Walden.

The soft sand on the bottom of Walden, as deep as I can wade, feels very warm to my feet, while the water feels cold. This may be partly a mere sensation, but I suspect that the sand is really much warmer than the water and that some creatures take refuge in it accordingly, that much heat passes through the water and is absorbed in the sand. Yet when I let a thermometer lie on the bottom and draw it up quickly I detect no difference between the temperature of the bottom and of the water at the surface. Probably it would have been different if the thermometer had been buried in the sand.

The air at 2 P. M. was 77; Walden near the shore is 76, in the middle, 74°; and when I let down a thermometer some sixty feet and draw it up quickly, I get no lower than 74°, but it may have risen as it came up.

The nighthawk's ripping sound, heard overhead these days, reminds us that the sky is, as it were, a roof, and that our world is limited on that side, it being reflected as from a roof back to earth. It does not suggest an

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infinite depth in the sky, but a nearness to the earth, as of a low roof echoing back its sounds.

Eleocharis acicularis still blooms.

The sternothærus in Walden has a smooth, clean shell, rather prettily marked, it is so clean, and would by many be taken for a different species from that of the river, which is commonly colored with mud and moss. I take two into the boat, and they think it enough when they have merely hidden their *heads* in a corner.

Also the great bullfrogs which sit out on the stones every two or three rods all around the pond are singularly clean and handsome bullfrogs, with fine yellow throats sharply separated from their pickle-green heads by their firmly shut mouths, and with beautiful eyes. They sit thus imperturbable, often under a pile of brush, at nearly regular intervals. An English taxidermist of Wayland (a cockney) told me the other day that he would have set up a bullfrog, it has so beautiful a "hie," but he could not buy a bullfrog's "hie" in the market.

July 18. 2 P. M. — To Second Division.

The *Asclepias Cornuti* is abundantly visited nowadays by a large orange-brown butterfly with dark spots and with silver spots beneath. Wherever the asclepias grows you see them.

The Second Division juncus is already withering and is considerably browned, so early is it. It appears not to ripen any seed.

July 19. A very dark cloud came up from the west this forenoon, — a dark curtain rolled up, with a

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grayish light beneath it, — which so darkened the streets and houses that seamstresses complained that they could not see to thread a needle, and for a few minutes rain fell in a deluge, the gutters ran full, and there was a whirlpool at every grating. This month has been remarkably wet, and the haymakers are having very catching weather.

2 P. M. — Up river in boat.

The pontederia is now generally conspicuous and handsome, — a very fresh blue, — with no stale flowers.

You now see great beds of polygonums above the surface getting ready to bloom, and the dulichium stands thick in shallow water, while in the cultivated ground the pigweed, butterweed, and Roman wormwood, and amaranth are now rank and conspicuous weeds. One troublesome rank weed in the garden now is the *Panicum Crus-galli*, — its great rather flat spreading branches. I see one just out.

I hear now that very fine pittering sound of a locust or cricket in the grass.

The *Juncus militaris* is commonly, but freshly, out.

We come to a standstill and study the pads in the J. Hosmer bulrush bog. There are on the pads, eating them, not only many black slugs or grubs, but a great many small dark-brown beetles, a quarter of an inch long, with a pale-brown edge, copulating; also other beetles, skaters, and flies (small brownish, large-winged flies in numbers together), and a variety of eggs are fastened to the pads, many in little round pinkish patches. I see one purplish patch exactly in the form of the point of a leaf, with a midrib, veins, and a bristle-

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like point, calculated to deceive; this lying on the pad. Some small *erect* pontederia leaves are white with eggs on the under side as if painted.

There are small open spaces amid the pads, — little deeps bottomed and surrounded with brown and ruddy hornwort like coral, — whose every recess is revealed in the sunlight. Here hundreds of minnows of various sizes and species are poised, comparatively safe from their foes, and commonly a red spider is seen making its way from side to side of the deep.

The rich crimson under sides (with their regularly branching veins) of some white lily pads surpasses the color of most flowers. No wonder the spiders are red that swim beneath; and think of the fishes that swim beneath this crimson canopy, — beneath a crimson sky. I can frequently trace the passage of a boat, a pickerel-fisher, perhaps, by the crimson under sides of the pads upturned.

The pads crowd and overlap each other in most amicable fashion. Sometimes one lobe of a yellow lily pad is above its neighbor, while the other is beneath, and frequently I see where a little heart-leaf (now showing its green spidery rays) has emerged by the stem, in the sinus of a great nuphar leaf, and is outspread in the very midst of it. The pads are rapidly consumed, but fresh ones are all the while pushing up and unrolling. They push up and spread out in the least crevice that offers.

Upland haying is past prime, and they are working into the low ground. None mowing on the Great Meadows yet.

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I noticed on the 16th that the darkness of the pipes was not obvious, the sedge is now comparatively so dark.

Minott, who sits alone confined to his room with dropsy, observed the other day that it was a cold summer. He knew it was cold; the whip-poor-will told him so. It sung once and then stopped.

July 20. 2 P. M. — To Walden.

Warm weather, — 86 at 2 P. M. (not so warm for a good while).

Emerson's lot that was burnt, between the railroad and the pond, has been cut off within the last three months, and I notice that the oak sprouts have commonly met with a check after growing one or two feet, and small reddish leafets have again put forth at the extremity within a week or so, as in the spring. Some of the oak sprouts are five to six feet high already.

On his hill near by, where the wood was cut about two years ago, this second growth of the oaks, especially white oaks, is much more obvious, and commenced longer ago. The shoots of this year are generally about two feet long, but the first foot consists of large dark-green leaves which expanded early, before the shoot met with a check. This is surmounted by another foot of smaller yellowish-green leaves. This is very generally the case, and produces a marked contrast. Dark-green bushes surmounted by a light or yellowish-green growth.

Sometimes, in the first-mentioned sprout-land, you see where the first shoot withered, as if frost-bitten at

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the end, and often only some large buds have formed there as yet. Many of these sprouts, the rankest of them, are fated to fall, being but slightly joined to the stump, riddled by ants there; and others are already prostrated.

Bathing on the side of the deep cove, I noticed just below the high-water line (of rubbish) quite a number of little pines which have just sprung up amid the stones and sand and wreck, some with the seed atop. This, then, is the state of their coming up naturally. They have evidently been either washed up, or have blown across the ice or snow to this shore. If pitch pine, they were probably blown across the pond, for I have often seen them on their way across.

Both *Scirpus subterminalis* and *debilis* are now in bloom at the Pout's Nest, the former the longest time, the water being very low and separated from the pond. The former out for some time, the latter not long.

Great numbers of pollywogs have apparently just changed into frogs. At the pondlet on Hubbard's land, now separated from the main pond by a stony bar, hundreds of small frogs are out on the shore, enjoying their new state of existence, masses of them, which, with constant plashing, go hopping into the water a rod or more before me, where they are very swift to conceal themselves in the mud at the bottom. Their bodies may be one and a half inches long or more. I have rarely seen so many frogs together. Yet I hardly see one pollywog left in this pool.

Yet at the shore against Pout's Nest I see many pollywogs, and some, with hind legs well grown beside

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their tails, lie up close to the shore on the sand with their heads out like frogs, apparently already breathing air before losing their tails. They squat and cower there as I come by, just like frogs.

July 21. A rainy day; half an inch of rain falls, spoiling much hay. This is so wet a season that the grass is still growing fast and most things are very fresh.

The leaves generally do not get to be perfect till the middle of July, when they are of a dark, hard, glossy green, *e. g.* the swamp white oak.

6 P. M. — Up Assabet.

Now, after the rain, the sun coming forth brightly, the swallows in numbers are skimming low over the river just below the junction.

Considerable bur-reed, vallisneria, and heart-leaf has been washed up against the weeds and pads along the sides of the river of late.

The canary grass standing so high and densely, with its now very light-brown closed heads, looks more like grain at a distance than any of our wild grasses, as you look down the river from the junction.

July 22. 2 P. M. — 70°, and, with a breeze, cool. To Annursnack.

See in the ditch by the roadside on Colburn Hill a box turtle which was crushed some time ago, and there is the mark of the wheel that passed over him. It is remarkable that, though I have seen but four or five of these turtles in this town, two at least of them had been crushed by a wheel, — that, few as they are, they

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should have got in the way of a wheel. I found another on the railroad once, southeast of this, on a part of the same dry region, and one on the dry plain under Fair Haven Hill.

In the path through Hosmer's pines beyond the Assabet, see a wood turtle — whose shell has apparently had one or two mouthfuls taken out of it on the sides — eating in a leisurely manner a common pink-topped toadstool some two inches in diameter, which it had knocked down and half consumed. Its jaws were covered with it.

The butterflies at present are chiefly on the Canada thistle and the mayweed. I see on the last, in the road beyond Colburn Hill, a surprising number of the small reddish (small copper) butterflies, for a dozen rods.

The leek will apparently bloom very soon. I see the stigmas, I think. What a surprising and stately plant! Its great flower-stem stands now a little aslant, some fifteen or eighteen inches high, regular[ly] beset with its great thick leaves, gradually lessening upward to its massy head. It has a peculiarly columnar appearance, like the Leaning Tower of Pisa.

Yesterday having been a rainy day, the air is now remarkably clear and cool and you rarely see the horizon so distinct. The surface of the earth, especially looking westward, — grass grounds, pastures, and meadows, — is remarkably beautiful. I stand in Heywood's pasture west of the leek and, leaning over the wall, look westward. All things — grass, etc. — are peculiarly fresh this season on account of the copious rains.

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The next field on the west slopes gently from both east and west to a meadow in the middle. So, as I look over the wall, it is first dark-green, where white clover has been cut (still showing a myriad low white heads which resound with the hum of bees); next, along the edge of the bottom or meadow, is a strip or belt three or four rods wide of red-top, uncut, perfectly distinct; then the cheerful bright-yellow sedge of the meadow, yellow almost as gamboge; then a corresponding belt of red-top on its upper edge, quite straight and rectilinear like the first; then a glaucous-green field of grain still quite low; and, in the further corner of the field, a much darker square of green than any yet, all brilliant in this wonderful light. You thus have a sort of terrestrial rainbow, thus: —

The farmer accustomed to look at his crops from a mercenary point of view is not aware how beautiful they are. This prospect was really exciting, even as a rainbow is. Then the next pasture on the northwest, where it sloped toward me gently, a smooth velvet or impalpable green slope, with here and there the lightest cobwebby touch of lighter green like a dew on it, where a little fescue grass still made an impression in spite of

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the cows. These soft, indefinite lighter touches on the dark-green enamelled slope! It was like a delicately watered surface, and here and there stood on it a few young hickories, their stems and their umbrage both as black as a coal; and further, just this side the wall over which the clear light came, some low bushes, probably sumach, reflected a hoary, silvery light. You can tell the crops afar off by their color. The next, more springy pasture on the north was all lit up with yellow ferns.

Smooth sumach apparently in prime, and handsome as a spiræa. The flies that rain about your head in woods, how long? Hills (not so far off as to be blue) are now a yellowish brown from the withered heads of grass. Pastures generally a brownish tinge. First locust heard.

July 23. The button-bush is but just fairly beginning here and there.

Still more rain this forenoon, but chiefly clouds. We have had several thunder-showers this month in the forenoon, it clearing off bright by the afternoon.

I saw the other day where the lightning on the 12th or 13th had struck the telegraph-posts at Walden Pond. It had shattered five posts in succession, they being a dozen rods apart, spoiling them entirely; though all of them *stood* but one, yet they were a mere wrack of splinters through which you could look. It had omitted a great many more posts and struck half a dozen more at a great distance from these on each side. The furthest I noticed was near by the second mile-post, the nearest midway the causeway. And at the same time

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there was a smart shock, an explosion, at the operating office at the depot, two miles off from the furthest point. I should think, speaking from memory, that the posts struck were the oldest and dampest, or most rotten. At one or two posts it had plainly entered the ground and plowed toward the railroad-track, slightly injuring it. It struck a pitch pine standing within four or five feet of the wire, leaving a white seam down one side of it, also two large oaks a little further off. This was where the telegraph ran parallel to, and a few feet only from, a wood. It also struck a small oak on the opposite side of the track. The lightning struck for two miles (!!) at least.

2 P. M. — By boat to Conantum.

It has cleared up fairly.

The late rose is now in prime along the river, a pale rose-color but very delicate, keeping up the memory of roses. Also the *Lilium Canadense* is apparently in prime and very abundant in College Meadow.

So far as leaves are concerned, one of the most noticeable phenomena of this green-leaf season is the conspicuous reflection of light in clear breezy days from the silvery under sides of some.

All trees and shrubs which have light-colored or silvery under sides to their leaves, but especially the swamp white oak and the red maple, are now very bright and conspicuous in the strong wind after the rain of the morning. Indeed, now that the leaves are so numerous they are more noticeable than ever, but you must be on the windward side. Some, as the *Salix alba*, are thus silvered only at the top and extremities, the

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younger leaves alone being sufficiently appressed to show their under sides. But the two kinds first mentioned are the most generally conspicuous, and these forming commonly the front rank, — especially at the base of hills, — behind which grow other oaks, and birches, pines, etc., you see the whole outline of these trees, waving and rustling in the breeze against that darker green, suggesting frostwork, or as if etched in silver on a green ground. To be sure, most, if not all leaves, not to mention grasses, are a paler green beneath, and hence the oaks and other trees behind show various shades of green, which would be more observed if it were not for these stronger contrasts. Though the wind may not be very strong nor incessant, you appear to see *only* the under sides of those first named, and they make a uniform impression, as if their leaves, having been turned up, were permanently held so. Before the wind arose, the wooded shore and hillsides were an almost uniform green, but now the whole outline of the swamp white oaks and maples is revealed by the wind — a sort of magic, a "presto change" — distinctly against trees whose leaves are nearly of the same color with the upper sides of these.

Some of the swamp white oaks, whose leaves are but slightly turned up, look as if crisped by frost. The grape leaf also, where it occurs, is sufficiently conspicuous. Thus the leaves take an airing. It is like etching on silverware. If you look sharply, you perceive also the paler under sides of the oaks and birches in the background contrasting with the darker upper sides of their lower leaves. In a maple swamp every

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maple-top stands now distinguished thus from the birches in their midst. Before they were confounded, but a wind comes and lifts their leaves, showing their lighter under sides, and suddenly, as by magic, the maple stands out from the birch. There is a great deal of life in this landscape. What an airing the leaves get! Perchance it is necessary that their under sides be thus exposed to the light and air in order that they may be hardened and darkened by it.

At the same time with this, and indeed for about a week, I have seen some maples of both kinds just beginning to show a ruddy tinge, and I think that this is really for the most part an evidence of feebleness, for I see that one or two white maples standing in wet places, which have been thus premature, have finally died.

I see a snake crossing the river at Hubbard's Bridge as swiftly as a muskrat could, which, indeed, I at first took it for, — faster than a muskrat would.

I find the ripest blueberries (*Vaccinium vacillans*) not on the very top nor on the lower slope, but on the brow, or what is called the "pitch," of the hill (Conantum) toward the light. The ripest are of course the largest, and this year very large and hard and bead-like.

Slender early spiranthes noticed.

I read of the Amazon that its current, indeed, is strong, but the wind always blows up the stream. This sounds too good to be true.

July 24. The carpenter working for Edward Hoar in Lincoln caught, two or three days ago, an exhausted or half-famished golden-winged warbler alive in their

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yard. It was within half a mile that I saw one a few weeks ago. It is a sufficiently well-marked bird, by the large yellow spot on the wing (the greater coverts), yellow front and crown, and the very distinct black throat and, I should say, upper breast, above which white divided by a broad black line through the eye. Above blue-gray, with much yellowish-green dusting or reflection, *i. e.* edging, to the feathers.

Many a field where the grass has been cut shows now a fresh and very lit-up light green as you look toward the sun. This is a remarkably cool day. Thermometer 72° at 2 P. M.

The song of the field sparrow sounds more prominent of late, and quite rich and varied, and methinks I begin to hear the warbling vireo more?

July 25. P. M. — To Mr. Bradshaw's, Wayland, with Ed. Hoar.

I was surprised to see among the birds which Bradshaw has obtained the little auk of Nuttall (*Mergulus alle*, or common sea-dove), which he says that he shot in the fall on the pond of the Assabet at Knight's factory. There were two, and the other was killed with a paddle. It is said in Wilson, though apparently not *by* him, that "with us it is a very rare bird, and when seen it is generally in the vicinity of the sea." One was sent to him from Great Egg Harbor in December, 1811, as a great curiosity, and this is the one described. Rarely visits Great Britain; is found as far north as Spitzbergen at least. "The Greenlanders call it the Ice-bird from the circumstance of its being the harbinger of ice." "It

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grows fat in the stormy season, from the waves bringing plenty of crabs and small fish within its reach." Nuttall says its appearance here is always solitary; driven here by stress of weather; that it has been seen in Fresh Pond, and Audubon found a few breeding in Labrador. Giraud says, "In the United States it is rare." "I am informed [it][1] is occasionally seen by the fishermen of Egg Harbor." Is that on Long Island?[2] Says one was killed at "Raynor South," and it is said to breed on the arctic coast. Ross's party fed on them on the west coast of Greenland. Peabody says: "In hardiness and power of enduring cold, no bird exceeds them. . . . In Newfoundland they are called the Ice-bird, from the presumption that, unless extreme cold were approaching, they would not come so far from home. Those that are found in this state are generally exhausted by their long flight; some have quietly submitted to be taken by the hand. They are not regular visitants, but occasional solitary wanderers."

Was also surprised to see the fork-tailed stormy petrel (*Thalassidroma Leachii*) in his collection, which he caught exhausted near his house, and I think that he said his boy found another dead. Brewer says, "Habitat from Massachusetts to Newfoundland." Wilson says that one of the other species (*T. Wilsonii*) was shot on the Schuylkill near Philadelphia, and that they are sometimes found in the interior of Great Britain. Giraud says that the former, like the last, "is of rare

[1] [The brackets are Thoreau's.]

[2] [Great Egg Harbor and Little Egg Harbor are on the New Jersey coast.]

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occurrence on the shores of Long Island," and, under the *T. Wilsonii*, that "the Petrel is never seen inland except when driven in, as it occasionally happens, by severe storms." Baird wrote to him shortly after the gale in August, 1842: "You have probably seen an account in the papers of the Petrels which had been driven inland by the storm of August. They were nearly all the Fork-tailed Petrel, Thalassidroma Leachii. I saw about half a dozen specimens killed near Washington. They were killed in Petersburgh and Bewfort, Va., and many other places." According to Peabody, Audubon makes the fork-tailed to be much more abundant on the coast of Massachusetts than the *T. Wilsonii*, and about vessels to be the most suspicious of the three. P. says, "I have had one brought to me which was taken near Chicopee River in Springfield, 70 miles from the shore."

He had also the *Ardea exilis*, or least bittern, which he obtained on his river meadow. He sees it there occasionally and has set it up before, though it is not so common as the *viridis*. He sees it stand on the pads. It is considerably less than the *viridis* and more tawny or tawny-brown. Wilson says it "is the smallest known species of the whole tribe," and that, like the *viridis*, they skulk by day and feed by night. Peabody says, "They are seldom seen, as they rise only in sudden alarm."

He also has the long-eared owl (*Strix otus*), which he killed in the woods behind his house. Wilson says, "Except in size, this species has more resemblance to the Great Horned Owl than any other of its tribe." Probably the same with the European. Peabody says

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it "is never common" in Massachusetts. Giraud has seen it in his neighborhood only in the winter.

He has the *Rallus Carolinianus*, and says that he sees another kind as common as this on the river meadows there, — a true rail, but with a much longer bill. He is very confident about it and has killed and set them up. It is undoubtedly the *R. Virginianus*, or lesser clapper rail, which, as he had already said, corresponded to an English rail which he knew. So we have this in Concord, no doubt.

He has the *Sylvia maculosa*, shot near his house. Bluish-ash above, I believe, head or crown the same, yellow throat and beneath, with many blackish spots and marks [?] on sides and breast, and white spots on inner vanes of tail-feathers, the tail being blackish.

Has two specimens of what he called the crow blackbird, shot by his house in the spring. They appeared to me surprisingly large, and he had furnished them with yellow irides, which he says are like the original ones. Nuttall says that the *Quiscalus major* has a yellow iris, the other a silvery iris. Brewer says that the former resembles the latter "to a great degree, differing from it principally in size and in its concave tail." This of Bradshaw's measured about fourteen inches long. He says these two were larger than others with them. The vertical depth of bill at base was that assigned to the *Q. versicolor* by Nuttall. As set up, I think that the tail was not convex.

Passed a field in Wayland occupied by so worthless a crop to *the farmer* as to attract attention, — a very undulating gravelly and stony field filled with johns-

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wort (in its prime), sorrel (still red-seeded), and mulleins, between which, however, you saw the gravel, — yet very pleasant to the naturalist.

July 26. 2 P. M. — To Walden.

Rhyncospora alba, perhaps as long as *fusca*, toward east part of Hubbard's Close, *i. e.* arethusa part. Rusty cotton-grass abundant, but also going and gone to seed, say a fortnight, in same place. Common cranberry still lingers in bloom there, though berries are half grown.

Methinks the leaves begin to rustle generally, *i. e.* with a harder rustle, about June 11th, when they begin to show light under sides in the breeze.

I saw a bream swimming about in that smaller pool by Walden in Hubbard's Wood, though entirely cut off from the pond now. So they may be well off in the Wyman meadow or Pout's Nest.

July 27. A. M. — Pretty heavy rain last night.

The day after a heavy rain, I can detect all the poor or sappy shingles on my neighbor's low roof which I overlook, for they, absorbing much water and not drying for a long time, are so many black squares spotting the gray roof.

2 P. M. — Sail and paddle down river.

The water has begun to be clear and sunny, revealing the fishes and countless minnows of all sizes and colors, this year's brood.

I see healthy blossoms of the front-rank polygonum just fairly begun.

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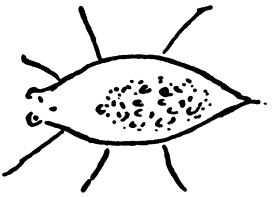
I see running on the muddy shore under the pontederia a large flat and thin-edged brown bug (with six legs), some seven eighths of an inch long, pointed behind; with apparently its eggs, fifty or sixty in number, large and dark-colored, standing side by side on their ends and forming a very conspicuous patch which covers about a third of its flat upper surface. I remove one with my knife, and it appears to stand in a thick glutinous matter. It runs through the water and mud, and falls upon its back a foot or more from my hand without dislodging them.



See, twenty rods or more down-stream, four or five young ducks, which appear already to be disturbed by my boat. So, leaving that to attract their attention, I make my way alongshore in the high grass and behind the trees till I am opposite to them. At a distance they appear simply black and white, as they swim deep, — black backs and white throats. Now I find that they have retreated a little into the pontederia, and are very busily diving, or dipping, not immersing their whole bodies, but their heads and shoulders while their bodies are perfectly perpendicular, just like tame ducks. All of them close together will be in this attitude at the same moment. I now see that the throat, and probably upper part, at least, of breast, is clear-white, and there is a clear line of white above eye and on neck within a line of black; and as they stand on their heads, the tips apparently of their tails (possibly wings? ?) are conspicuously white or whitish; the upper part, also, is

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seen to be brownish rather than black. I presume these to be young summer ducks, though so dark; say two thirds grown.

How easy for the young ducks to hide amid the pickerel-weed along our river, while a boat goes by! and this plant attains its height when these water-fowl are of a size to need its shelter. Thousands of them might be concealed by it along our river, not to speak of the luxuriant sedge and grass of the meadows, much of it so wet as to be inaccessible. These ducks are diving scarcely two feet within the edge of the pickerel-weed, yet one who had not first seen them exposed from a distance would never suspect their neighborhood.

See very great flocks of young red-wing blackbirds.

July 28. 2 P. M. — Up Assabet to Annursnack.

Dulichium spathaceum apparently some days. *Holcus lanatus* long done; very abundant on the west and northwest side of Painted-Cup Meadow.

A man shows me in the street a single bunch of potato-balls (*i. e.* on one stem) twenty in number, several of them quite an inch in diameter and the whole cluster nearly five inches in diameter as it hangs, to some extent emulating a cluster of grapes. The very sight of them supplies my constitution with all needed potash.

Scirpus subterminalis in the Assabet at island above Dove Rock, how long?

July 29. Rain, more or less, by day, and more in the night.

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2 P. M. — To Lincoln Bridge by railroad.

Cyperus filiculmis, how long? Some time.

July 30. 2 P. M. — To Martial Miles's Swamp.

Fimbristylis capillaris, probably several days in some places. See very pretty pink yarrow, roadside opposite Whiting's orchard.

See hen-hawks perched. Are they not more at liberty now, their young being better able to shift for themselves, some of them?

Am glad to press my way through Miles's Swamp. Thickets of choke-berry bushes higher than my head, with many of their lower leaves already red, alternating with young birches and raspberry, high blueberry andromeda (high and low), and great dense flat beds of *Rubus sempervirens*. Amid these, perhaps in cool openings, stands an island or two of great dark-green high blueberry bushes, with big cool blueberries, though bearing but sparingly this year.

In a frosty hollow in the woods west of this and of the blackberry field, find a patch of amelanchier, probably *oblongifolia* (??), full of fruit now in its prime. Comparing it with the *Botryapium* of the Cliffs, it appears to be the oblong, being much more obtuse and very little serrate, and not heart-shaped like the *Botryapium*. It is an open sedge hollow surrounded by woods, with some shrubs in it rising above the sedge which have been killed by frost formerly. Here grows a pretty thick patch of the shad-bush, about a rod and a half long, the bushes about three feet high, and quite interesting now, in fruit. Firm dark-green leaves with short, broad,

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irregular racemes (cluster-like) of red and dark dull-purplish berries intermixed, making considerable variety in the color, — of peculiar color among our small fruits. The ripest and largest dark-purple berries are just half an inch in diameter. You are surprised and delighted to see this handsome profusion in hollows so dry and usually so barren and bushes commonly so fruitless. These berries are peculiar in that the red are nearly as pleasant-tasted as the more fully ripe dark-purple ones. I think this crop is due to the wetness and coolness of the summer.

Though an agreeable berry, they are hardly so grateful to my palate as huckleberries and blueberries. These conspicuous red — for most are red — [berries] on rather high and thin-leaved bushes, growing open and airy, remind you a little of the wild holly, the berry so contrasts with the dark leaf.

Returning, we come through the midst of the nearly quite dry J. P. B.'s Cold Pool. Excepting a little pool in the middle, this is now one great dense bed of *Cyperus diandrus*, well out, and *Juncus Conradi*, as I call it, now in prime (together with *Juncus acuminatus*). The lower and internal part of this bed is yellow, bright-yellow like sedge, *i. e.* the cyperus stems and leaves, while the spikes of this and the rest form a soft reddish-brown crust, as it were, over all. Mixed with these over the whole area is literally a myriad of gratiola (say in its prime); a most remarkable sight, — countless yellow dots, and occasionally you see a perfectly white one among them.

Quite a sultry day, and smells mustyish, as if dog-days

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were beginning. Is it not the height of summer when the locust is heard?

Hear the sound of the first flail, — some farmer, perchance, wishing to make room in his barn, or else wanting the grain. Is it wheat or rye? It may be either.

As I come through Hosmer's potato-field, I see the great clusters of potato-balls on the sandy ground, bespattered with sand, on each side. Methinks they are unusually abundant this year. Somebody has hung up one great cluster at the post-office. Is it owing to the wet and coolness?

July 31. Foggy morning.

M. Pratt sends me *Trifolium agrarium* (a long time out) from a ditch-side on his land, — yellow hop clover. This specimen is two feet high or long. He had not seen it there for some years.

Mr. Bradford finds and brings to me what I judge from a plate in Loudon to be *Potentilla recta* of southern Europe; a long time out. *Vide* press. I find the base of the plant by the east wall, in the road, about six rods south of John Flint's house.

I copy this account of *P. recta* from Persoon: "Fol. septenatis quinatisque, foliol. lanceolatis grosse dentatis, petalis obcordatis cal. majoribus, caule erecto. . . . Ad muros et ad agrorum margines. Pet. magna pallida, calyce submajora." This is under his division with digitate leaves and a naked *receptacle* (?), if this is his word.[1] But in this the outside of the calyx or receptacle is

[1] It is.

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shortly pubescent, and the petals are much longer than the calyx. *Vide* Persoon's other division.[1]

P. M. — Up Assabet.

Decidedly dog-days, and a strong musty scent, not to be wondered at after the copious rains and the heat of yesterday.

At mid-afternoon I am caught in another deluging rain[2] as I stand under a maple by the shore. Looking on a water surface, you can see as well as hear when it rains very hard. At first we had a considerable shower which but slightly dimpled the water, and I saw the differently shaded or lit currents of the river through it all; but anon it began to rain very hard, and there were a myriad white globules dancing or rebounding an inch or two from the surface, where the big drops fell, and I heard a sound as if it rained pebbles or shot. At this season the sound of a gentler rain than this, *i. e.* the sound of the dripping rain on the leaves, which are now dark and *hard*, yields a dry sound as if the drops struck on paper, but six weeks ago, when the leaves were so yellowish and tender, methinks it was a softer sound, as was the rustling.

Now, in the still moonlight, the dark foliage stands almost stiff and dark against the sky.

At 5 P. M. the river is nine and seven eighths inches above summer level.

We may expect to see any common small-seeded European plant springing up by our roadsides in course of time.

[1] Do not find another so much like it.

[2] A great deal fell.

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Before it rained hardest I could see in the midst of the dark and smoother water a lighter-colored and rougher surface, generally in oblong patches, which moved steadily down the stream, and this, I think, was the new water from above welling up and making its way downward amid the old. The water or currents of a river are thus not homogeneous, but the surface is seen to be of two shades, the smoother and darker water which already fills its bed [?] and the fresh influx of lighter-colored and rougher, probably more rapid, currents which spot it here and there; *i. e.*, some water seems to occupy it as a lake to some extent, other is passing through it as a stream, — the lacustrine and the fluviatile water. These lighter reaches without reflections (?) are, as it were, water wrong side up. But do I ever see these except when it rains? And are they not the rain-water which has not yet mingled with the water of the river?

END OF VOLUME XIII

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